Appendix G

GEOLOGIC RECONNAISSANCE

Krazan & ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

May 16, 2006 KA Project No. 122-06008

Mr. Jeff Adams
Transcan Otay Mesa, LLC
3189 Danville Boulevard, Suite 245
Alamo, CA 94507

RE: Geotechnical Engineering Investigation
Proposed Shopping Center
Otay Mesa Road and Harvest Road
Otay Mesa, California

Dear Mr. Adam:

In accordance with your request and authorization, we have completed our Geotechnical Engineering Investigation for the above-referenced site. This report summarizes the results of our field investigation, laboratory testing and engineering analyses. Based on the data obtained, our understanding of the proposed project and our engineering analyses, it is our opinion that it is feasible to develop the site as planned.

As noted in our report, Krazan & Associates should be retained to review project plans and specifications prior to the start of construction, and to observe and test earthwork and foundation construction. Observation and testing services should also be performed by our field staff during construction activities will allow us to compare conditions exposed during construction with those encountered during our investigation and to present supplemental recommendations if warranted by different site conditions.

If you have any questions regarding the information or recommendations presented in our report, or if we may be of further assistance, please contact our Temecula, California office at (951) 694-0601.

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

James Kellogg

James M. Kellogg, PE
Regional Manager

cc: Addressee (4)

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED SHOPPING CENTER
OTAY MESA ROAD AND HARVEST ROAD
OTAY MESA, CALIFORNIA

PROJECT NO. 122-06008
MAY 16, 2006

PREPARED FOR:
TRANSCAN OTAY MESA, LLC
3189 DANVILLE BOULEVARD, SUITE 245
ALAMO, CALIFORNIA 94507

ATTENTION: MR. JEFF ADAM

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED SHOPPING CENTER
OTAY MESA ROAD AND HARVEST ROAD
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GEOTECHNICAL ENGINEERING INVESTIGATION
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OTAY MESA, CALIFORNIA

INTRODUCTION

This report presents the results of our Geotechnical Engineering Investigation for the proposed shopping center in Otay Mesa, County of San Diego, California. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, grading, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior concrete flatwork, retaining walls, soil corrosivity, and pavement design.

A Vicinity Map showing the location of the site is presented on Figure 1. A Site Plan showing the approximate boring locations is presented on Figure 2. Descriptions of the field and laboratory investigations, boring log legend and boring logs are presented in Appendix A. Appendix A contains a description of the laboratory-testing phase of this study, along with the laboratory test results. Appendices B and C contain general guides for earthwork and flexible pavement specifications. If conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE OF SERVICES

This geotechnical investigation was conducted to evaluate subsurface soil and groundwater conditions at the project site. Engineering analysis of the field and laboratory data was performed for the purpose of developing and providing geotechnical recommendations for use in the design and construction of the earthwork, foundation and pavement aspects of the project.

Our scope of services was outlined in our proposal dated March 2, 2006, revised March 14, 2006 (KA Proposal No. PC122008-06) and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- Review of selected published geologic maps, reports and literature pertinent to the site and surrounding area.

- A field investigation consisting of drilling sixteen (16) borings to depths of 10 to 51 feet below the existing ground surface for evaluation of the subsurface conditions at the project site.

- Performing laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.

- Evaluation of the data obtained from the investigation and engineering analyses of the data with respect to the geotechnical aspects of structural design, and site grading and paving.

- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

PROPOSED CONSTRUCTION

Based on our review of the site plan and our discussions with the project representative, we understand that the proposed project will include construction of a shopping center with eleven (11) retail and restaurant buildings. The footprints of the buildings range from 5,000 to 138,000 square feet. The proposed buildings are planned to be single or 2-story, wood-frame or masonry/tilt-up structures with concrete slab-on-grade floors. Building loads are anticipated to be relatively light. On-site parking and landscaping are also planned for the development.

Mass grading of the site is expected to entail minor cuts and fills from existing grades to establish building pads and parking areas, and to provide for surface drainage of the site.

In the event these structural or grading details are inconsistent with the final design criteria, we should be notified so that we can evaluate the potential impacts of the changes on the recommendations presented in this report and provide an updated report as necessary.

SITE LOCATION AND SITE DESCRIPTION

The subject site is trapezoid in shape and encompasses approximately 27.5 acres. The site is located at the northwest corner of Otay Mesa Road and Harvest Road in the unincorporated Otay Mesa area, County of San Diego, California (see Vicinity Map, Figure 1). The future SR-125 Highway will be located along the west boundary of the property. The site is predominately surrounded by vacant lands and sparse commercial developments.

Presently, the site is vacant and covered with dense weeds. The subject site is gradually descending to the south and south-west with an estimated topographic relief of approximately 20 feet over a horizontal distance of 1,200 feet. The average elevation of the site is approximately 540 feet above mean sea level.

SITE INVESTIGATION

GEOLOGIC SETTING

The subject site is located in the San Diego Bay region within the Peninsular Range Geomorphic Province, which is characterized by northwest trending mountain ranges separated by sub-parallel fault zones. The mountain ranges are underlain by basement rocks consisting of Jurassic metavolcanic and

meta-sedimentary rocks and Cretaceous igneous rocks of the Southern California batholith. Surface and near-surface deposits of the Peninsular Range Province are composed of late Cretaceous, Tertiary, and Quaternary sediments that flank the mountain ranges to the northeast and southwest.

The local geologic area is underlain by the Otay Formation (Oligocene to Miocene). The formation is composed of poorly indurated massive light-colored sandstone, siltstone and claystone, interbedded with bentonite lenses. Deposits encountered on the subject site during exploratory drilling are consistent with those mapped in the area and are discussed in detail in this report.

The site is located in a seismically active area of Southern California. The project is located 23.3 kilometers from the Rose Canyon fault (Type B fault) and 68.1 kilometer from the Elsinore-Julian fault (Type A fault). The area in consideration shows no mapped faults on-site according to maps prepared by the California Division of Mines and Geology (now known as the California Geologic Survey) and published by the International Conference of Building Officials (ICBO). The project site is not located within a State of California Earthquake Fault Zone. The site is located in a Seismic Zone 4.

FIELD AND LABORATORY INVESTIGATIONS

Subsurface soil conditions were explored by drilling sixteen (16) borings using a truck-mounted drill rig to depths ranging from 10 to 51 feet. The approximate boring locations are shown on the Site Plan, Figure 2. These approximate boring locations were estimated in the field based on pacing and measuring from the limits of existing site features. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsurface soils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A more detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of in-situ moisture and dry density, gradation, shear strength, consolidation and expansion potential, maximum dry density, R-value of the materials encountered. Details of the laboratory-testing program are discussed in Appendix A. The results of the laboratory tests are presented on the borings logs or on the test reports, which are also included in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. The soils within the depth of exploration consist of 1 to 2 feet of loose/ disturbed soils underlain by native alluvium and Otay Formation of siltstone/sandstone bedrock. Fill soils may be present onsite between our exploratory boring locations.

Below the loose/disturbed surface soils, stiff to very hard silty clay, clayey silt, sandy silt, siltstone, medium dense to very dense silty sand and sandstone were encountered. Field and laboratory tests suggest that the native soils and bedrock are moderately strong and slightly compressible. Penetration resistance, measured by the number of blows required to drive a Modified California sampler or a

Standard Penetration Test (SPT) sampler, ranged from 16 to 87 blows per foot. Dry densities ranged from 81.2 to 111.2 pounds per cubic feet (pcf). Representative soil samples had angles of internal friction of 19 to 25 degrees and cohesions of 400 to 200 psf. Representative soil samples consolidated approximately -1.1 and 1.2 percent under a 2-ksf load when saturated. A representative soil sample had an Expansion Index (EI) of 120 and a maximum dry density of 105 pcf. Two representative subgrade soil samples had R-values of less than 5.

One boring, Boring B-1, was advanced to a depth of 51 feet to obtain additional information for use in liquefaction potential evaluation. The soil profile was found to consist of predominately hard clayey silt, sandy silt and siltstone and is consistent with the majority of the borings drilled during this study.

The above is a general description of soil conditions encountered at the site in the borings drilled for this investigation. For a more detailed description of the soil conditions encountered, please refer to the boring logs in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was encountered at a depth of 49 feet during the time of this investigation.

It should be recognized that water table elevation might fluctuate with time. The depth to groundwater can be expected to fluctuate both seasonally and from year to year. Fluctuations in the groundwater level may occur due to variations in precipitation, irrigation practices at the site and in the surrounding areas, climatic conditions, flow in adjacent or nearby canals, pumping from wells and possibly as the result of other factors that were not evident at the time of our investigation. Therefore, water level observations at the time of our field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report. Long-term monitoring in observation wells, sealed from the influence of surface water, is often required to more accurately define the potential range of groundwater conditions on a site.

SEISMICITY AND LIQUEFACTION POTENTIAL

Seismicity is a general term relating to the abrupt release of accumulated strain energy in the rock materials of the earth's crust in a given geographical area. The recurrence of accumulation and subsequent release of strain have resulted in faults and fault systems. Fault patterns and density reflect relative degrees of regional stress through time, but do not necessarily indicate recent seismic activity; therefore, the degree of seismic risk must be determined or estimated by the seismic record in any given region.

Soil liquefaction is a state of soil particle suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by seismic events. To evaluate the liquefaction potential of the site, the following items were evaluated:

1) Soil type
2) Groundwater depth
3) Relative density
4) Initial confining pressure
5) Intensity and duration of ground shaking

The soils beneath the site consist of hard cohesive soil and bedrock formation. Groundwater was encountered at a depth of 49 feet in our borings. The potential for liquefaction is considered to be very low based on the cohesive soils, very hard bedrock formation and absence of shallow groundwater conditions.

SOIL CORROSIVITY

Corrosion tests were performed to evaluate the soil corrosivity to the buried structures. The tests consisted of sulfate content, chloride content, and resistivity and the results of the tests are included as follows:

Parameter	Results	Test Method
Resistivity	2,630 ohms-cm	CALTRANS
Sulfate	395 ppm	EPA 9038
Chloride	Less than 5 ppm	EPA 9253
pH	8.13	EPA 9045C

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

ADMINISTRATIVE SUMMARY

Based on the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the proposed development may be made as presently anticipated provided that the recommendations presented in this report are considered in the design and construction of the project.

In brief, the subject site and soil conditions, with the exception of the upper loose/disturbed soils and expansive soil, appear to be conducive to the development of the project. Recommendations pertaining to the removal and recompaction of these loose soils are presented herein. After completion of the recommended site preparation, the site should be suitable for shallow footing support.

The subsurface soils appear to have a high swell potential. The estimated swell pressure of the clayey material may cause excessive movement of concrete slabs and flatworks. To minimize the potential soil movement, it is recommended that the upper 24 inches of soil within building or exterior flatwork areas

be replaced "non-expansive" fill (EI≤20). The fill material should be primarily granular, slightly cohesive, fine silty sand or sandy silt, with relatively impervious characteristics when compacted. A clean sand or very sandy soil is not acceptable for this purpose. A sandy soil will allow the surface water to drain into the expansive clayey soils below, which may result in swelling. The replacement soil and/or the upper 24 inches of Imported Fill soils should meet the specifications as described under the subheading Engineered Fill. The replacement soils should extend 5 feet beyond the perimeter of the building. The non-expansive replacement soil should be compacted to at least 90 percent relative compaction based on ASTM D1557 Test Method. The exposed native soils in the excavation should not be allowed to dry out and should be kept continuously moist prior to backfilling.

Where the availability of "non-expansive" fill soils is limited, stabilization of the expansive soils through lime treatment may be a viable alternative. Lime treatment is a process whereby the expansive soil is mixed with lime using a large roto-tiller type piece of equipment. The treatment depth for this procedure would be to a depth of 24 inches. Lime-treated soils must also be protected from moisture lose for several days after treatment to allow for full hydration of the lime. If moisture loss is allowed to occur, the conversion of the soil and mitigation of the expansion potential may be incomplete. This alternative is often competitive relative to the costs associated with the removal and replacement of expansive soils with "non-expansive" fill where site grades are balanced, such as may be the case at this previously developed site. Where site grades will be raised the most cost-effective solution is generally the use of "non-expansive" fill.

The shrinkage of recompacted soil and fill placement is estimated at 5 to 10 percent. This value is an estimate and may vary significantly depending on several items including soil conditions, compaction effort, weather, etc. Subsidence within building areas, below the Engineered Fill, is anticipated to be less than 0.01 feet, due to the recommended over-excavation. Subsidence within parking areas, below the 12-inch recompaction depth, is estimated at 0.05 feet.

Liquefaction potential was evaluated at the site. Based on our findings, it is our opinion that the potential for liquefaction at the site is low. Therefore, no mitigation measures would be warranted.

All grading and earthwork should be performed in accordance with the Grading Ordinances of the County of San Diego and the applicable portions of the General Earthwork Specifications in Appendix B, except as modified herein.

GROUNDWATER INFLUENCE ON STRUCTURES/CONSTRUCTION

Based on our findings and historical records, it is not anticipated that groundwater will rise within the zone of structural influence or affect the construction of foundations and pavements for the project. However, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, "pump," or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

WEAK AND COMPRESSIBLE SOILS

The upper onsite soils are moisture-sensitive and are moderately compressible under saturated conditions. Of primary importance in the development of this site is the removal/recompaction of potentially compressible soils from the areas of the proposed structures. This is discussed in detail in the Earthwork section of this report.

EARTHWORK

Site Preparation – Clearing and Stripping

General site clearing should include removal of vegetation and existing pavement, utilities; structures; including foundations basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed. Deeper stripping may be required in localized areas. These materials will not be suitable for reuse as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

Any excavations that result from clearing operations should be backfilled with Engineered Fill. Krazan & Associates' field staff should be present during site clearing operations to enable us to locate areas where depressions or disturbed soils are present and to allow our staff to observe and test the backfill as it is placed. If site clearing and backfilling operations occur without appropriate observation and testing by a qualified geotechnical consultant, there may be the need to over-excavate the building areas to identify uncontrolled fills prior to mass grading of the building pads.

As with site clearing operations, any buried structures encountered during construction should be properly removed and backfilled. The resulting excavations should be backfilled with engineered fill.

Overexcavation and Recompaction

Building Pad Areas

To minimize post-construction soil movement and provide uniform support for the proposed building, overexcavation and recompaction within the proposed building pad area should be performed to a minimum depth of 3 feet below existing grades or 1.5 feet below bottom of the proposed footings, whichever is deeper. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction. The overexcavation and recompaction should also extend laterally a minimum of 5 feet beyond edges of the proposed footings or building perimeter. Any undocumented fill encountered during grading should be removed and replaced with Engineered Fill.

Pavement Areas

Within the pavement areas, it is recommended that overexcavation and recompaction should be performed to at least 12 inches below existing grade or finish grade, whichever is deeper. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found

during our field investigation. Deeper overexcavation and recompaction may be required if any undocumented fills or loose deposits are encountered. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction.

Fill Placement

Prior to placement of fill soils, the upper 8 inches of native subgrade soils should be scarified, moisture-conditioned to near optimum moisture content, and recompacted to a minimum of 90 percent of the maximum dry density based on ASTM D1557-00 Test Method.

It is recommended that the upper 24 inches of soil within the building slab and exterior flatwork areas be replaced with "non-expansive" fill of silty sand or sandy silt with an Expansion Index equal to or less than 20 (EI≤20). The replacement soil and/or the upper 24 inches of Imported Fill soils should meet the specifications as described under the subheading Engineered Fill. The replacement soils should extend 5 feet beyond the perimeter of the building. The non-expansive replacement soil should be compacted to at least 90 percent relative compaction based on ASTM D1557-00 Test Method. The exposed native soils in the excavation should not be allowed to dry out and should be kept continuously moist prior to backfilling.

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned as necessary, and compacted to achieve at least 90 percent of the maximum dry density as determined by ASTM D1557 Test Method. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

The upper soils, during wet winter months, may become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

Lime Treatment of Expansive Soils

If lime treatment is to be pursued as an option of mitigation of the near-surface expansive soils in building pad areas, laboratory testing to measure the soil properties, to determine the minimum dosage level and to assess the effectiveness of treatment will be required. This was not included in our scope of services and will required additional study. Laboratory testing to evaluate the Plasticity Index, Expansion Index, pH and soluble sulfate content will be required. Initial testing should consist of an evaluation of the selected soils samples in accordance with ASTM test method D6276 – 99a. This is a test to indicate the soil-lime proportion needed to achieve an elevated pH of 12.4, which is considered necessary for sustaining the reactions required to stabilize subgrade soil. Where the treatment level results in a lower pH value, the soil may be modified but may not achieve the full degree of stabilization required. The lowest percentage of lime that results in a soil-lime pH of 12.4 is considered to be the minimum dosage required. The test results indicate that 3 and 5 percent of lime (based on dry weight of soil) are required to obtain the minimum pH of 12.4 for the gray and black fat clays, respectively.

While indicating the required dosage of lime to stabilize a soil, the pH testing procedure provides no direct information regarding strength gain or reduction in expansion potential of the treated material. The optimum soil-lime proportion for soil stabilization is determined by tests of specific characteristics of stabilized soil such Expansion Index, Plasticity Index, unconfined compressive strength or R-value.

For initial budgeting purposes for cost comparison, a treatment level of 5 percent high calcium quick lime by dry weight of soil (about 5.25 pounds per cubic foot) should be considered. The actual treatment level will be a function of the soils to be treated as well as the lime type and source.

DQM, a dolomitic quick lime, while meeting State of California specifications, is not the same product as a high calcium quick lime. Often, high calcium quick limes will provide the same degree of stabilization as that of DQM, but at a lower dosage. This is due to the variations on chemical make-up of the two products, and the resultant chemical reactions with the soil minerals. In addition to potentially requiring higher treatment levels, DQM can be a slower reacting product, particularly in cooler weather.

When treating the soils, particularly with DQM, it is important that the lime-treated soil moisture content remain elevated and that the treated soils be allowed to hydrate for a 24-hour period after initial mixing followed by remixing to achieve the proper particle size. The remixed soils should then be compacted within 24 hours of remix. Following initial compaction, often performed by the stabilization contractor, the grading contractor should proceed with final compaction without delay. The lime-treated soils must be kept moist while compaction operations are proceeding and through finish grading. Once compacted, finish-grading operation to achieve design grades should commence. Where the grade is found to be high, the excess soils should be trimmed and removed. The soils should not be used to fill areas found to be lower than design grade. Treated soils that are trimmed during final grading should be disposed of off-site or used as fill outside of the pavement areas. The presence of lime will adversely affect vegetation.

The lime and the lime treatment operations should be conducted in accordance with these recommendations and the requirements of the State of California, Department of Transportation (Caltrans) Standard Specifications, Section 24, latest addition, whichever is more stringent. Compaction should be determined in accordance with ASTM procedures D2922 and D1557.

A 24-inch section of lime-treated soil is recommended for mitigation of the expansive soils in the areas of the planned concrete slabs-on-grade for floors and exterior concrete walkways that surround the buildings. Most specialty contractors providing soil stabilization services are equipped to treat soils to a depth of 12 inches, with some equipped to treat a full 18-inch section in one lift. In either case, the treatment of the pad will require two lifts. The lower lift should be treated and compacted, followed by placement of the required soils to achieve pad grade. Treatment of this second lift of soils can be performed on a mixing pad prior to placement on the actual building pad area or after placement on the building pad.

ENGINEERED FILL

The organic-free, on-site, native soils are predominately clayey silt, sandy silty and silty clay. The soils with Expansion Index greater than 20 should not be used within the upper 24 inches of the building pad and exterior flatwork areas. The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the contractor, since he has complete control of the project site at that time.

Where "non-expansive" is required to aid in mitigating the effects of expansive soils, the materials should be primarily granular, slightly cohesive, fine silty sand or sandy silt, with relatively impervious characteristics when compacted. Imported Fill material should be predominately non-expansive granular material with a plasticity index less than 10 and an Expansion Index less than 20. Imported Fill should be free from rocks and clods greater than 4 inches in diameter. All Imported Fill material should be submitted to the Soils Engineer for approval at least 48 hours prior to delivery at the site.

TEMPORARY EXCAVATION STABILITY

All excavations should comply with the current OSHA requirements. All cuts greater than 5 feet in depth should be sloped or shored. Temporary excavations should be sloped at 1:1 (horizontal to vertical) or flatter, up to a maximum depth of 10 feet. Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within five feet of the top (edge) of the excavation.

Where sloped excavations are not feasible due to site constraints, the excavations may require shoring. The design of the shoring system is normally the responsibility of the contractor or shoring designer, and therefore, is outside the scope of this report. The design of the temporary shoring should take into account lateral pressures exerted by the adjacent soil, and, where anticipated, surcharge loads due to adjacent buildings and any construction equipment or traffic expected to operate alongside the excavation.

The excavation recommendations provided herein are based on soil characteristics derived from test borings within the area. Variations in soil conditions will likely be encountered during the excavations. Krazan & Associates, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations, not otherwise anticipated in the preparation of this recommendation.

UTILITY TRENCH LOCATION, CONSTRUCTION AND BACKFILL

To maintain the desired support for existing or new foundations, new utility trenches should be located such that the base of the trench excavation is located above an imaginary plane having an inclination of 1.0 horizontal to 1.0 vertical, extending downward from the bottom edge of the adjacent footing.

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards by a contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the contractor. Traffic and vibration adjacent to trench walls should be kept to a minimum; cyclic wetting and drying of excavation

side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

For purposes of this section of the report, backfill is defined as material placed in a trench starting one foot above the pipe; bedding and shading (also referred to as initial backfill) is all material placed in a trench below the backfill. With the exception of specific requirements of the local utility companies or building department, pipe bedding and shading should consist of clean medium-grained sand. The sand should be placed in a damp state and should be compacted by mechanical means prior to the placement of backfill soils. Above the pipe zone, underground utility trenches may be backfilled with either free-draining sand, on-site soil or approved imported soil. The trench backfill should be compacted to at least 90 percent relative compaction.

COMPACTED MATERIAL ACCEPTANCE

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be solely used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent on the moisture content and the stability of that material. The Geotechnical Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be too dry or excessively wet, unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with in-situ moisture content significantly less than optimum moisture. Where expansive soils are present, heaving of the soils may occur with the introduction of water. Where the material is a lean clay or silt, this type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

SURFACE DRAINAGE AND LANDSCAPING

The ground surface should slope away from building and pavement areas toward appropriate drop inlets or other surface drainage devices. We recommended that adjacent paved exterior grades be sloped at a minimum of 2 percent for a minimum distance of 5 feet away from structures. Ideally, asphalt concrete pavement areas should be sloped at a minimum of 2 percent, with Portland cement concrete sloped at a minimum of one percent toward drainage structures. These grades should be maintained for the life of the project.

Roof drains should be designed to avoid discharging into landscape areas adjacent to the buildings. Downspouts should be directed to discharge directly onto paved surfaces to allow for surface drainage into the storm systems or should be connected directly to the on-site storm drain.

FLOOR SLABS AND EXTERIOR FLATWORK

Concrete slab-on-grade floors should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with ASTM Specification E 1643-98. According to ASTM Guidelines, the water vapor retarder should consist of a vapor retarder sheeting underlain by a minimum of 3 inches

of compacted, clean, gravel of ¾-inch maximum size. To aide in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the No. 100 sieve. The sand should be free of clay, silt or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structures may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slabs-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with ASTM guidelines. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

FOUNDATION

The proposed structures may be supported on a shallow foundation system bearing on at least 1.5 feet of Engineered Fill. The buildings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead-Plus-Live Load	2,000 psf
Total Load, including short duration wind or seismic loads	2,660 psf

The footings should have a minimum depth of 24 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is deeper. Minimum footing widths should be 15 inches for continuous footings and 24 inches for isolated footings.

The allowable bearing pressure provided in the report is a gross value. The equivalent concrete weight for large footings should be 30 pounds per cubic foot (pcf) in addition to the structural loads.

The footing excavations should not be allowed to dry out any time prior to pouring concrete. It is recommended that footings be reinforced by at least two No. 5 reinforcing rebars in both top and bottom or as specified by the structural engineer.

Provided the site is prepared as recommended and that the foundations are designed and constructed in accordance with our recommendations, the total settlement due to foundation loads is not expected to exceed 1 inch. The differential settlements are anticipated to be less than ½-inch in 20 feet. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.30 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 200 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A one-third increase in the above value may be used for short duration, wind, or seismic loads.

RETAINING WALLS

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of their height at the top may be designed using an equivalent fluid active pressure of 44 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 62 pounds per square foot per foot per depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The wall backfill should be compacted to at least 90 percent of the maximum dry density based on ASTM D1557-00 Test Method.

The active and at-rest earth pressures do not include hydrostatic pressures. To reduce the build-up of hydrostatic pressures, drainage should be provided behind the retaining walls. Wall drains should consist of a minimum 12-inch wide zone of drainage material, such as ¾-inch by ½-inch drain rock wrapped in a non-woven polypropylene geotextile filter fabric such as Mirafi 140N or equivalent. Alternatively, drainage may be provided by the placement of a commercially produced composite drainage blanket, such as Miradrain, extending continuously up from the base of the wall. The drainage material should extend from the base of the wall to finished subgrade in paved areas and to within about 12 inches below the top of the wall in landscape areas. In landscape areas the top 12 inches should be backfilled with compacted native soil. A 4-inch minimum diameter, perforated, Schedule 40 PVC drain pipe should be placed with holes facing down in the lower portion of the wall drainage material, surrounded with drain rock wrapped in filter fabric. A solid drainpipe leading to a suitable discharge point should provide drainage outlet. As an alternative, weep holes may be used to provide drainage. If weep holes are used the weep holes should be 3 inches in diameter and spaced about 8 feet on centers. The backside of the weep holes should be covered with a corrosion-resistant mesh to prevent loss of backfill and/or drainage material.

PAVEMENT DESIGN

Based on our laboratory test results, an R-value of 5 is used for the pavement design and the R-value may be verified after grading. The following table shows the recommended pavement sections for various traffic indices.

Traffic Index	Asphaltic Concrete	Class 2 Aggregate Base*	Compacted Subgrade**
4.5	3.0"	8.0"	12.0"
5.0	3.0"	9.5"	12.0"
6.0	4.0"	11.5"	12.0"
6.5	4.0"	13.0"	12.0"

** 95% compaction based on ASTM D1557 Test Method or CAL 216*
*** 90% compaction based on ASTM D1557 Test Method or CAL 216*

If traffic indices are not available, an estimated (typical value) index of 4.5 may be used for automobile parking and an index of 6.5 may be used for light truck traffic.

We recommend that the subgrade soil be prepared as discussed in this report. The compacted subgrade should be non-yielding when proof-rolled with a loaded ten-wheel truck, such as a water truck or dump truck, prior to pavement construction. Subgrade preparation should extend a minimum of 2 feet laterally beyond the edge of pavement or back of curbs. Pavement areas should be sloped and drainage gradients maintained to carry all surface water off the site. A cross slope of 2 percent is recommended in asphalt concrete pavement areas to provide good surface drainage and to reduce the potential for water to penetrate into the pavement structure.

Unless otherwise required by local jurisdictions, paving materials should comply with the materials specifications presented in the Caltrans Standard Specifications Section. Class 2 aggregate should comply with the materials requirements for Class 2 base found in Section 26.

SITE COEFFICIENT

The site coefficient, per Table 16-J, California Building Code, is based upon the site soil conditions. It is our opinion that a site coefficient of soil type S_c is appropriate for building design at this site. For seismic design of the structures, in accordance with the seismic provisions of the Uniform Building Code, we recommend the following parameters:

Seismic Item	Value	UBC Reference
Zone Factor	0.4	Table 16I
Source Type	B	Table 16U
Coefficient N_a	1.0	Table 16S
Coefficient N_v	1.0	Table 16T
Coefficient C_a	0.40	Table 16Q
Coefficient C_v	0.56	Table 16R

SOIL CORROSIVITY

Excessive sulfate or chloride in either the soil or native water may result in an adverse reaction between the cement in concrete and the soil. California Building Code has developed criteria for evaluation of sulfate and chloride levels and how they relate to cement reactivity with soil and/or water. The soil samples from the subject site were tested to have negligible sulfate and chloride concentrations. Therefore, normal concrete mixes may be used for concentrations such as found in these soils.

Electrical resistivity testing of the soil indicates that the onsite soils may have moderate potential for metal loss from electrochemical corrosion process. A qualified corrosion engineer may be consulted regarding the corrosion effects of the onsite soils on underground metal utilities.

ADDITIONAL SERVICES

Krazan & Associates should be retained to review your final foundation and grading plans, and specifications. It has been our experience that this review provides an opportunity to detect misinterpretation or misunderstandings with respect to the recommendations presented in this report prior to the start of construction.

Variations in soil types and conditions are possible and may be encountered during construction. In order to permit correlation between the soil data obtained during this investigation and the actual soil conditions encountered during construction, a representative of Krazan & Associates, Inc. should be present at the site during the earthwork and foundation construction activities to confirm that actual subsurface conditions are consistent with those contemplated in our development of this report. This will allow us the opportunity to compare actual conditions exposed during construction with those encountered in our investigation and to expedite supplemental recommendations if warranted by the exposed conditions. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

All earthworks should be performed in accordance with the recommendations presented in this report, or as recommended by Krazan & Associates during construction. Krazan & Associates should be notified at least five working days prior to the start of construction and at least two days prior to when observation and testing services are needed. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

The review of plans and specifications, and the observation and testing of earthwork related construction activities by Krazan & Associates are important elements of our services if we are to remain in the role of Geotechnical Engineer-of-Record. If Krazan & Associates is not retained for these services, the client and the consultants providing these services will be assuming our responsibility for any potential claims that may arise during or after construction.

LIMITATIONS

Geotechnical Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using appropriate and current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Geotechnical Engineering, physical changes in the site due to site clearing or grading activities, new agency regulations, or possible changes in the proposed structure or development after issuance of this report will result in the need for professional review of this report. Updating or revisions to the recommendations report, and possibly additional study of the site may be required at that time. In light of this, the Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that two years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. The logs of the exploratory borings do not provide a warranty as to the conditions that may exist beneath the entire site. The extent and nature of subsurface soil and groundwater variations may not become evident until construction begins. It is possible that variations in soil conditions and depth to groundwater could exist beyond the points of exploration that may require additional studies, consultation, and possible design revisions. If conditions are encountered in the field during construction, which differ from those described in this report, our firm should be contacted immediately to provide any necessary revisions to these recommendations.

This report presents the results of our Geotechnical Engineering Investigation, which was conducted for the purpose of evaluating the soil conditions in terms of foundation and retaining wall design, and grading and paving of the site. This report does not include reporting of any services related to environmental studies conducted to assessment the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere, or the presence of wetlands.

Any statements in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey professional judgment regarding the presence of potential hazardous or toxics substances. Conversely, the absence of statements in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, does not constitute our rendering professional judgment regarding the absence of potentially hazardous or toxics substances.

The conclusions of this report are based on the information provided regarding the proposed construction. We emphasize that this report is valid for the project as described in the text of this report and it should not be used for any other sites or projects. The geotechnical engineering information presented herein is based upon our understanding of the proposed project and professional interpretation of the data obtained in our studies of the site. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. The Geotechnical Engineer should be notified of any changes to the proposed project so the recommendations may be reviewed and re-evaluated. The work conducted through the course of this investigation, including the preparation of this report, has been performed in accordance with the generally accepted standards of geotechnical engineering practice, which existed in geographic area of the project at the time the report was written. No other warranty, express or implied, is made. This report is issued with the understanding that the owner chooses the risk they wish to bear by the expenditures involved with the construction alternatives and scheduling that are chosen.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (951) 694-0601.

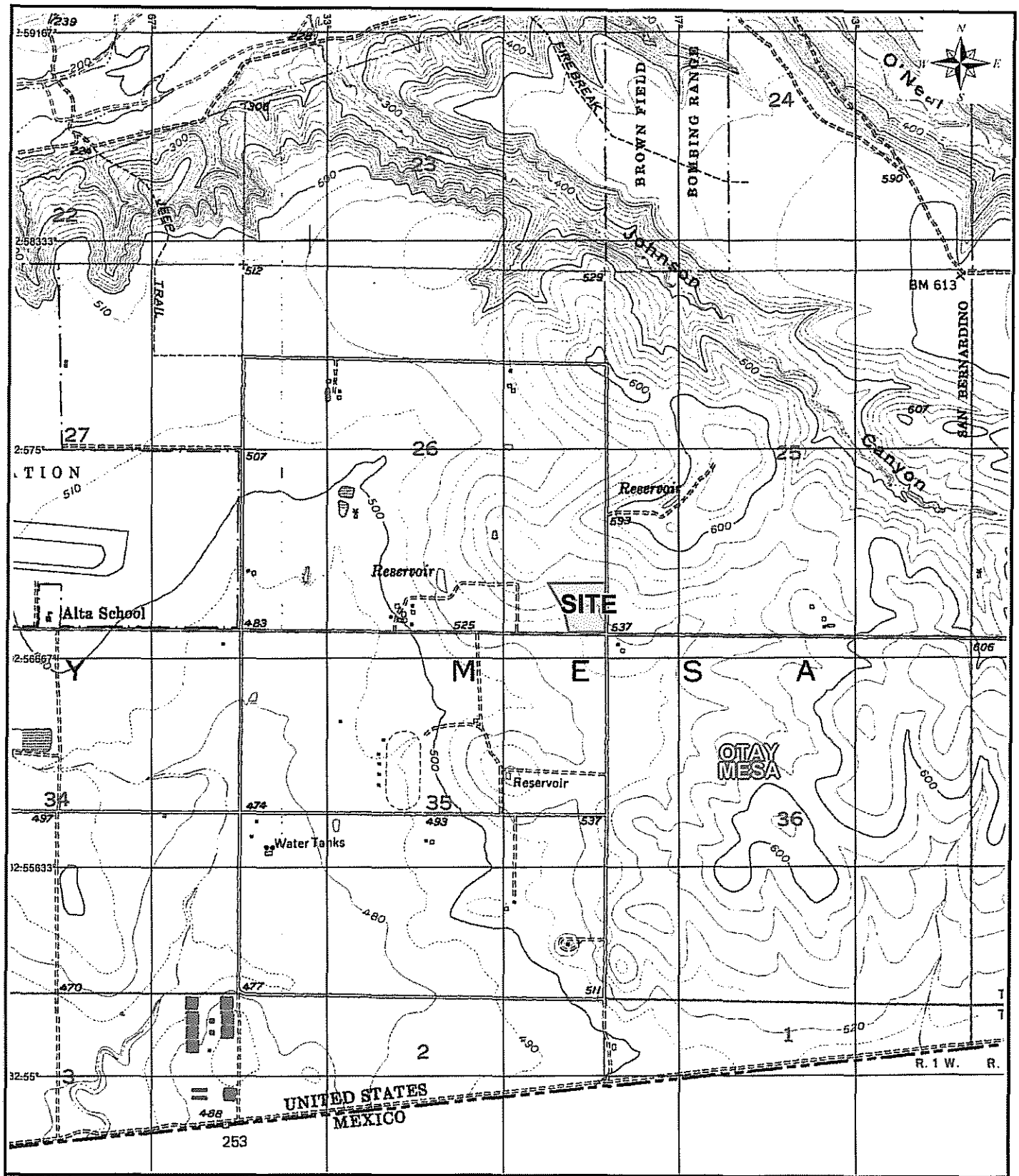
Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

James Kellogg

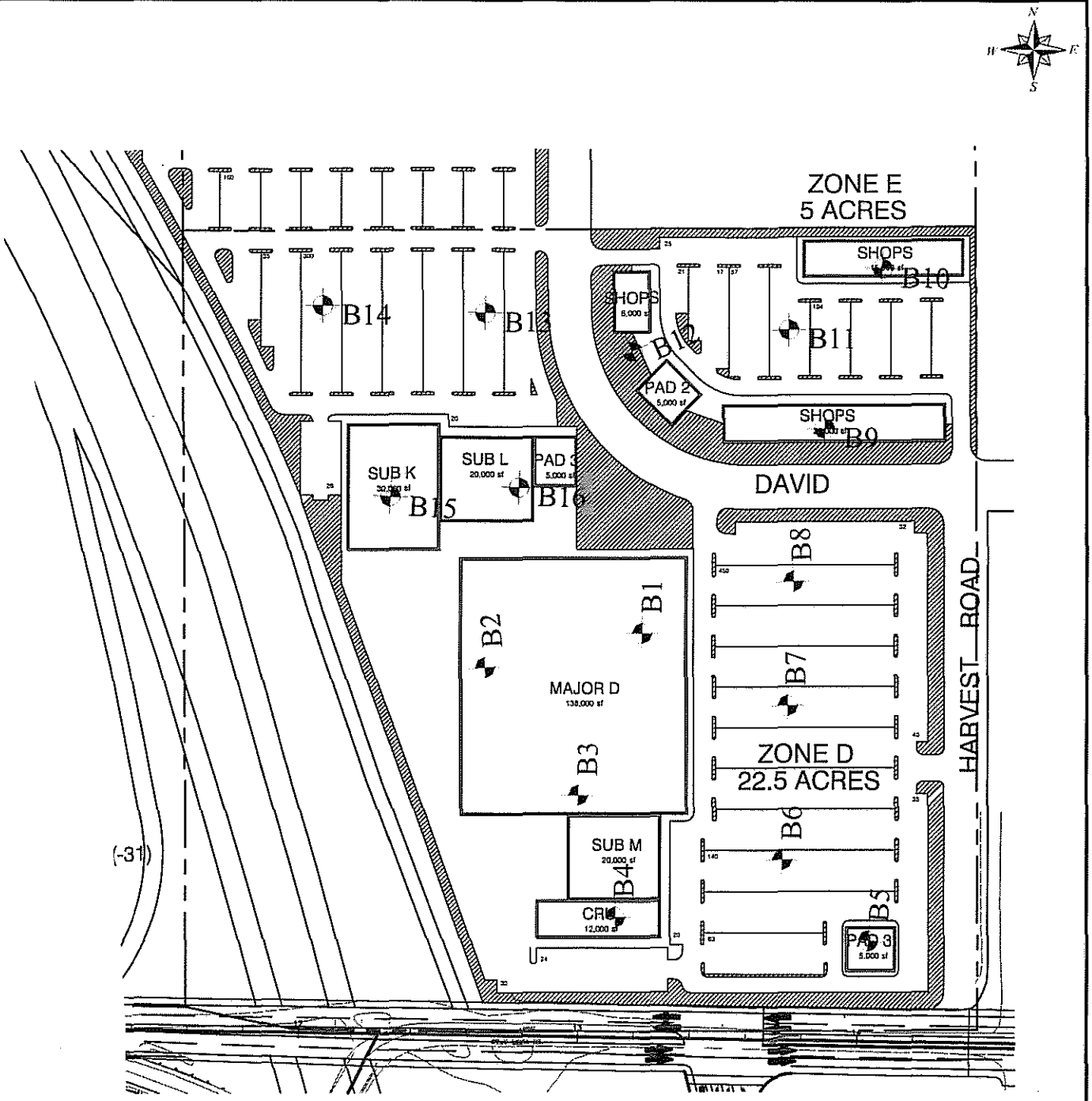
Clarence Jiang, GE
Project Engineer
RGE No. 2477

James M. Kellogg, PE
Regional Manager
RCE No. 65092

CJ/JMK:rm



PROPOSED SHOPPING CENTER OTAY MESA, CALIFORNIA	Scale: 1:24,000	Date: May '06	Krazan GEOTECHNICAL ENGINEERS Offices Serving the Western United States
	Drawn by: CJ	Approved by: CJ	
VICINITY MAP	Project No. 122-06008	Figure No. 1	



Legend

B16 Approximate Boring Location

PROPOSED SHOPPING CENTER OTAY MESA, CALIFORNIA	Scale: NTS	Date: May '06	Krazan GEOTECHNICAL ENGINEERS Offices Serving the Western United States
	Drawn by: CJ	Approved by: CJ	
SITE PLAN	Project No. 122-06008	Figure No. 2	

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

Our field investigation consisted of a surface reconnaissance and a subsurface exploration program consisted of drilling, logging and sampling a total of 16 borings. The depths of exploration ranged from about 10 feet to 51 feet below the existing site surface.

Members of our staff visually classified the soils in the field as the drilling and excavating progressed and recorded a continuous log of each boring. Visual classification of the soils encountered in our exploratory borings was made in general accordance with the Unified Soil Classification System (ASTM D2487). A key for the classification of the soil and the boring logs are presented in this Appendix.

During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsurface soils. Samples were obtained from the borings by driving either a 2.5-inch inside diameter Modified California tube sampler fitted with brass sleeves or a 2-inch outside diameter, 1-3/8-inch inside diameter Standard Penetration ("split-spoon") test (SPT) sampler without sleeves. Soil samples were retained for possible laboratory testing. The samplers were driven up to a depth of 18 inches into the underlying soil using a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler was recorded for each 6-inch penetration interval and the number of blows required to drive the sampler the last 12 inches are shown as blows per foot on the boring logs.

The approximate locations of our borings are shown on the Site Plan, Figure 2. These approximate locations were estimated in the field based on pacing and measuring from the limits of existing site features.

Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the soil underlying the site. The laboratory-testing program was formulated with emphasis on the evaluation of in-situ moisture and dry density, gradation, shear strength, expansion potential, and R-value of the materials encountered. In addition, chemical tests were performed to evaluate the soil/cement reactivity and corrosivity. Test results were used in our engineering analysis with respect to site and building pad preparation through mass grading activities, foundation and retaining wall design recommendations, pavement section design, evaluation of the materials as possible fill materials and for possible exclusion of some soils from use at the structures as fill or backfill.

Select laboratory test results are presented on the boring logs, with graphic or tabulated results of selected tests included in this Appendix. The laboratory test data, along with the field observations, was used to prepare the final boring logs presented in the Appendix.

Krazan & ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

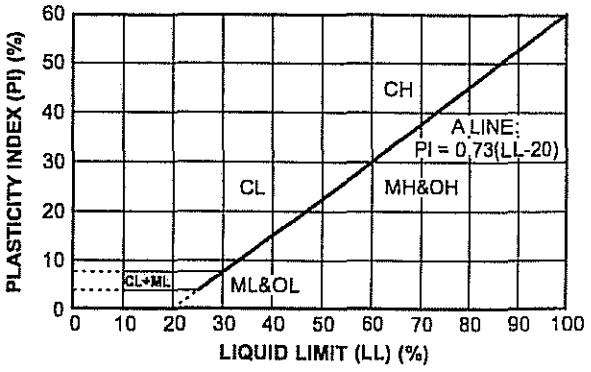
CONSISTENCY CLASSIFICATION

Description	Blows per Foot
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION

Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.042
Fine-grained	No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074

PLASTICITY CHART



Log of Drill Hole B1

Project: Shopping Center | **Project No:** 122-06008

Client: Transcan | **Figure No.:** A-1

Location: Otay Mesa, CA | **Logged By:** SK

Depth to Water> 49' | **Initial:** 49' | **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***CLAYEY SILT (ML),*** fine grained, brown, moist, hard				
2			107.0	16.8		37
4						
6		***SANDY SILT/SILTY SAND W/CLAY (SM/ML),*** fine grained, brown, moist, dense	107.6	15.7		31
8						
10		***SANDY SILT W/TRACE CLAY (ML), SILTSTONE*** fine grained, light brown, moist, very hard		24.0		35
12		***CLAYEY SILT (ML), SILTSTONE*** fine grained, light brown, very moist				
14						
16		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, light brown, very moist, hard		27.1		38
18						
20		Same as above, very hard siltstone		26.3		72
22						
24		Same as above, siltstone		28.8		53
26						
28						
30						86

Water Content (%): 10 20 30 40

Drill Method: Hollow Stem Auger | **Drill Date:** 05/01/06

Drill Rig: CME 75 | **Hole Size:** 6"

Driller: Baja Drilling | **Elevation:** See Site Plan

Krazan and Associates

Log of Drill Hole B1

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-1
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> 49'
Initial: 49'
At Completion:

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
				22.8		86
32						
34		Same as above, siltstone		21.7		73
36						
38						
40		Same as above, w/less clay		21.4		85 @ 10"
42						
44		Same as above, siltstone		27.1		61
46						
48		Same as above, becomes wet, water at 49'				
50				32.9		58
52		End of Borehole Total Depth = 51' Groundwater was encountered at 49' during drilling Hole backfilled with grout 05/01/06				
54						
56						
58						
60						

Water Content (%): 10 20 30 40

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan

Krazan and Associates

Log of Drill Hole B2

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-2
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> **Initial:** **At Completion:**

Depth (ft)	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0	Ground Surface				
0	***CLAYEY SILT (ML),*** fine grained, brown, very moist, very stiff				
2	***SILTY CLAY (CL),*** fine grained, brown, very moist, hard	108.4	16.1		31
6	***CLAYEY SILT (ML),*** fine grained, light brown, very moist, hard	97.1	18.8		33
10	***SANDY SILT W/TRACE CLAY (ML), SILTSTONE*** fine grained, light brown, moist, hard		24.7		42
14	Same as above, very hard siltstone		25.5		51
20	End of Borehole				
22	Total Depth = 20' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06				

Water Content (%): 10 20 30 40

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Krazan and Associates
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Log of Drill Hole B3

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-3
Location: Otay Mesa, CA
Logged By: SK
Depth to Water>
Initial:
At Completion:

Depth (ft)	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0	Ground Surface				
0	***CLAYEY SILT (ML),*** fine grained, brown, very moist, very stiff				
2	***SILTY CLAY (CL),*** fine grained, brown, very moist, hard	107.9	17.6		30
4					
6	***CLAYEY SILT (ML),*** fine grained, light brown, very moist, hard	81.2	39.1		36
8					
10	***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, light brown, vey moist, hard		28.5		42
12					
14	Same as above, very hard siltstone		25.7		54
16					
18					
20	End of Borehole				
22	Total Depth = 20'				
	No groundwater was encountered during drilling				
24	Hole backfilled with soil cuttings and tamped 05/01/06				
26					
28					
30					

Water Content (%): 10 20 30 40

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Krazan and Associates

Log of Drill Hole B4

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-4
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> **Initial:** **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL),*** fine grained, brown, very moist, very stiff				
2		***CLAYEY SILT (ML),*** fine grained, light brown, very moist, very stiff	94.9	24.2		25
6				30.0		16
10		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, light brown, very moist, very stiff		30.5		28
14		Same as above, siltstone		24.8		35
20		End of Borehole				
		Total Depth = 20' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06				

Water Content (%): 10 20 30 40

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Krazan and Associates

Log of Drill Hole B5

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-5
Location: Otay Mesa, CA
Logged By: SK
Depth to Water>
Initial:
At Completion:

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
2		***SILTY CLAY (CL),*** fine grained, brown, very moist, very stiff	104.8	16.8		22	▪
4		***SILTY SAND/SANDY SILT W/TRACE CLAY (SM/ML),*** fine to medium grained, light brown, moist, medium dense	81.6	15.8		21	▪
6							
8							
10		***SANDY SILT W/TRACE CLAY (ML), SILTSTONE*** fine grained, light brown, very moist, hard		23.7		31	▪
12							
14		Same as above, very hard siltstone		23.4		58	▪
16							
18							
20		End of Borehole					
22		Total Depth = 20' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06					
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan

Krazan and Associates

Log of Drill Hole B6

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-6
Location: Otay Mesa, CA
Logged By: SK
Depth to Water>
Initial:
At Completion:

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
		Ground Surface					
0		***SILTY CLAY (CL),*** fine grained, brown, very moist, very stiff					
2			107.7	17.2		26	
4		***CLAYEY SILT (ML),*** fine grained, light brown, very moist, hard					
6			83.6	23.1		33	
8							
10		***SANDY SILT W/TRACE CLAY (ML),*** fine grained, light brown, very moist, hard					
		End of Borehole					
12		Total Depth = 10'					
		No groundwater was encountered during drilling					
14		Hole backfilled with soil cuttings and tamped 05/01/06					
16							
18							
20							
22							
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Krazan and Associates

Log of Drill Hole B7

Project: Shopping Center | **Project No:** 122-06008

Client: Transcan | **Figure No.:** A-7

Location: Otay Mesa, CA | **Logged By:** SK

Depth to Water> | **Initial:** | **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
0		***SILTY CLAY (CL),*** fine grained, brown, very moist, hard					
2			103.2	17.9		42	=
4		***CLAYEY SILT (ML),*** fine grained, light brown, very moist, very stiff					
6			86.8	25.0		24	=
8							
10		***SANDY SILT W/TRACE CLAY (ML),*** fine grained, light brown, very moist, very stiff					
		End of Borehole					
12		Total Depth = 10'					
		No groundwater was encountered during drilling					
		Hole backfilled with soil cuttings and tamped 05/01/06					
14							
16							
18							
20							
22							
24							
26							
28							
30							

Drill Method: Hollow Stem Auger | **Drill Date:** 05/01/06

Drill Rig: CME 75 | **Hole Size:** 6"

Driller: Baja Drilling | **Elevation:** See Site Plan

Krazan and Associates

Log of Drill Hole B8

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-8
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> **Initial:** **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
0		***SILTY CLAY (CL),*** fine grained, brown, very moist, hard					
2			108.6	12.5	⧗	35	■
4							
4		***SANDY SILT W/CLAY (ML),*** fine grained, light brown, moist, very stiff					
6			86.3	17.3	⧗	20	■
8							
10		End of Borehole					
12		Total Depth = 10' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06					
14							
16							
18							
20							
22							
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan

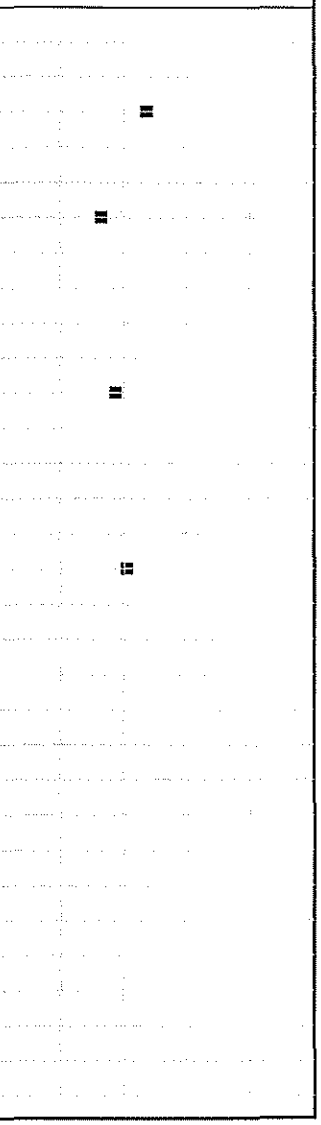
Krazan and Associates

Sheet: 1 of 1

Log of Drill Hole B9

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-9
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> **Initial:** **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL),*** fine grained, brown, very moist, hard				
2			105.1	23.5		46
4		***CLAYEY SITL (ML), SILTSTONE*** fine grained, light brown, very moist, hard	91.6	16.4		48
6						
8						
10		Same as above, very hard siltstone		18.6		80
12		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, light brown, very moist, very hard				
14						
16				20.4		59
18						
20		End of Borehole				
22		Total Depth = 20' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06				
24						
26						
28						
30						



Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Krazan and Associates

Log of Drill Hole B10

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-10
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> **Initial:** **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
0		***CLAYEY SILT (ML),*** fine grained, light brown, very moist, hard					
2			92.6	16.3		35	
4							
6		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, light brown, moist, very hard		15.6		68	
8							
10		Same as above, very hard siltstone		18.7		53	
12							
14		***SILTY SAND (SM), SANDSTONE*** fine grained, light brown, slightly moist, very dense		9.1		73	
16							
18		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, light brown, very moist					
20		End of Borehole					
22		Total Depth = 20' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06					
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Krazan and Associates
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Log of Drill Hole B11

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-11
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> **Initial:** **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
0		***CLAYEY SILT (ML),*** fine grained, light brown, very moist, stiff					
2				13.1		16	
4							
6		***CLAYEY SILT (ML), SILTSTONE*** very hard	88.2	17.4		59	
8		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, light brown, moist, very hard					
10		End of Borehole					
12		Total Depth = 10'					
14		No groundwater was encountered during drilling					
16		Hole backfilled with soil cuttings and tamped 05/01/06					
18							
20							
22							
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Krazan and Associates
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Log of Drill Hole B12

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-12
Location: Otay Mesa, CA
Logged By: SK
Depth to Water>
Initial:
At Completion:

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
0		***CLAYEY SILT (ML),*** fine grained, brown, very moist					
2		***SILTY SAND (SM),*** fine grained, light brown, moist, very dense	111.2	10.5		58	
4							
6		***SILTY SAND/SANDY SILT (SM/ML),*** fine grained, light brown, moist, very dense	98.4	11.0		50	
8		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, brown, very moist, very hard					
10				18.4		49	
12							
14		Same as above, siltstone					
16				15.4		87	
18							
20		End of Borehole					
22		Total Depth = 20' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06					
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Krazan and Associates

Log of Drill Hole B13

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-13
Location: Otay Mesa, CA
Logged By: SK
Depth to Water>
Initial:
At Completion:

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
0		***SILTY CLAY (CL),*** fine grained, brown, very moist					
2		***SANDY SILT W/TRACE CLAY (ML),*** fine grained, light brown, moist, hard	97.7	22.9		31	=
4							
6		Same as above, very hard w/more clay	95.7	16.0		82	=
8							
10		End of Borehole					
12		Total Depth = 10'					
14		No groundwater was encountered during drilling					
16		Hole backfilled with soil cuttings and tamped 05/01/06					
18							
20							
22							
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Krazan and Associates
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Log of Drill Hole B14

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-14
Location: Otay Mesa, CA
Logged By: SK
Depth to Water> **Initial:** **At Completion:**

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Water Content (%) 10 20 30 40
0		Ground Surface					
0		***SILTY CLAY (CL),*** fine grained, brown, very moist					
2		***SILTY SAND/SANDY SILT (SM/ML),*** fine grained, light brown, moist, medium dense	92.5	13.4		16	=
4		***SILTY CLAY (CL),*** fine grained, brown, very moist					
6		***SANDY SILT W/TRACE CLAY (ML),*** fine grained, light brown, moist, very hard	103.4	11.4		69	=
8							
10		End of Borehole					
12		Total Depth = 10'					
14		No groundwater was encountered during drilling					
16		Hole backfilled with soil cuttings and tamped 05/01/06					
18							
20							
22							
24							
26							
28							
30							

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Krazan and Associates
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Log of Drill Hole B15

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-15
Location: Otay Mesa, CA
Logged By: SK
Depth to Water>
Initial:
At Completion:

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0		Ground Surface				
0		***SILTY CLAY (CL),*** fine grained, brown, very moist				
2		***CLAYEY SILT (ML),*** fine grained, light brown, very moist, very hard	95.5	16.7		45
4						
6		***SANDY SILT W/CLAY (ML), SILTSTONE*** fine grained, brown, very moist, very hard	106.3	12.7		49
8						
10		Same as above, siltstone		21.1		42
12						
14		Same as above, w/less clay		22.2		52
16						
18						
20		End of Borehole				
22		Total Depth = 20'				
24		No groundwater was encountered during drilling				
26		Hole backfilled with soil cuttings and tamped 05/01/06				
28						
30						

Water Content (%): 10 20 30 40

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan
Sheet: 1 of 1

Krazan and Associates

Log of Drill Hole B16

Project: Shopping Center
Project No: 122-06008
Client: Transcan
Figure No.: A-16
Location: Otay Mesa, CA
Logged By: SK
Depth to Water>
Initial:
At Completion:

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		SUBSURFACE PROFILE	**SAMPLE**			
0		Ground Surface				
0		***SILTY CLAY (CL),*** fine grained, brown, very moist, hard				
2			107.8	16.1		38
4		***CLAYEY SILT (ML),*** fine grained, light brown, moist				
6		***SANDY SILT W/CLAY (ML),*** fine grained, brown, moist, very hard	96.4	12.1		35
10		***SANDY SILT W/TRACE CLAY (ML), SILTSTONE*** brown, moist, very hard		19.3		34
14		Same as above		23.2		46
20		End of Borehole				
22		Total Depth = 20' No groundwater was encountered during drilling Hole backfilled with soil cuttings and tamped 05/01/06				

Water Content (%): 10 20 30 40

Drill Method: Hollow Stem Auger
Drill Date: 05/01/06
Drill Rig: CME 75
Hole Size: 6"
Driller: Baja Drilling
Elevation: See Site Plan

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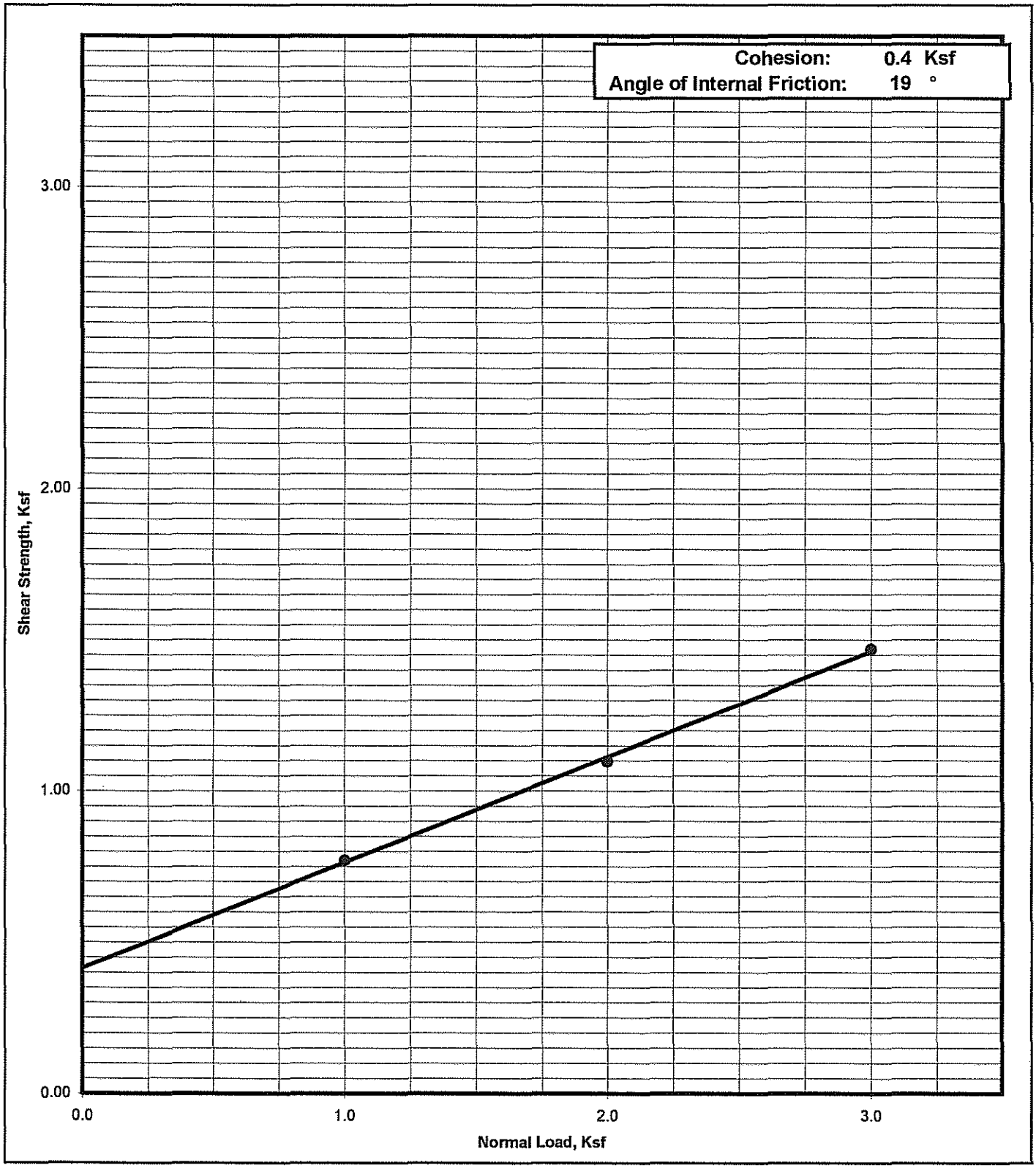
Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
122-06008	B-2 @ 2'	(CL), Silty Clay	5/9/06



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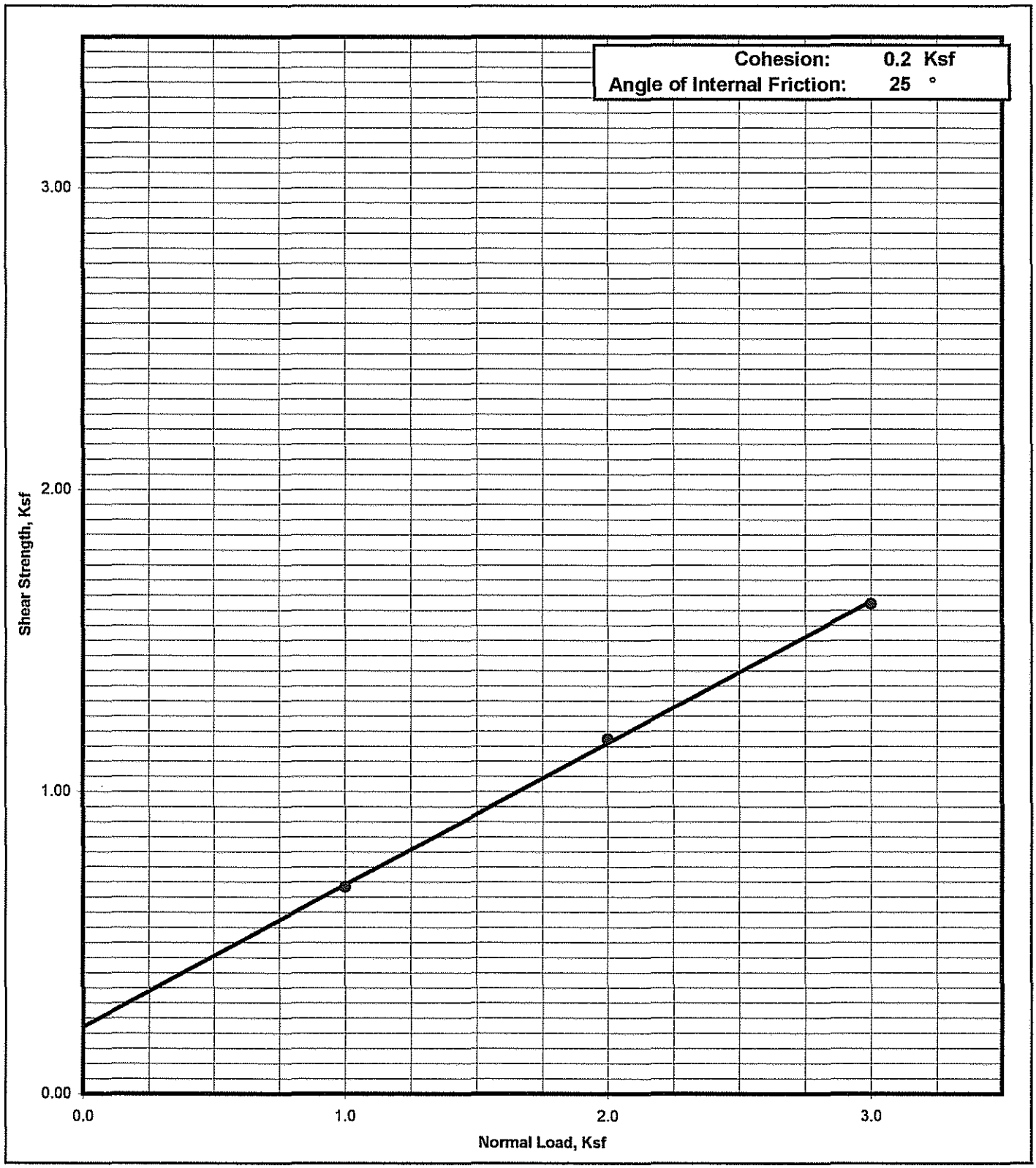
Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
122-06008	B-15 @ 5'	(ML), Sandy Silt w/ Clay	5/9/06



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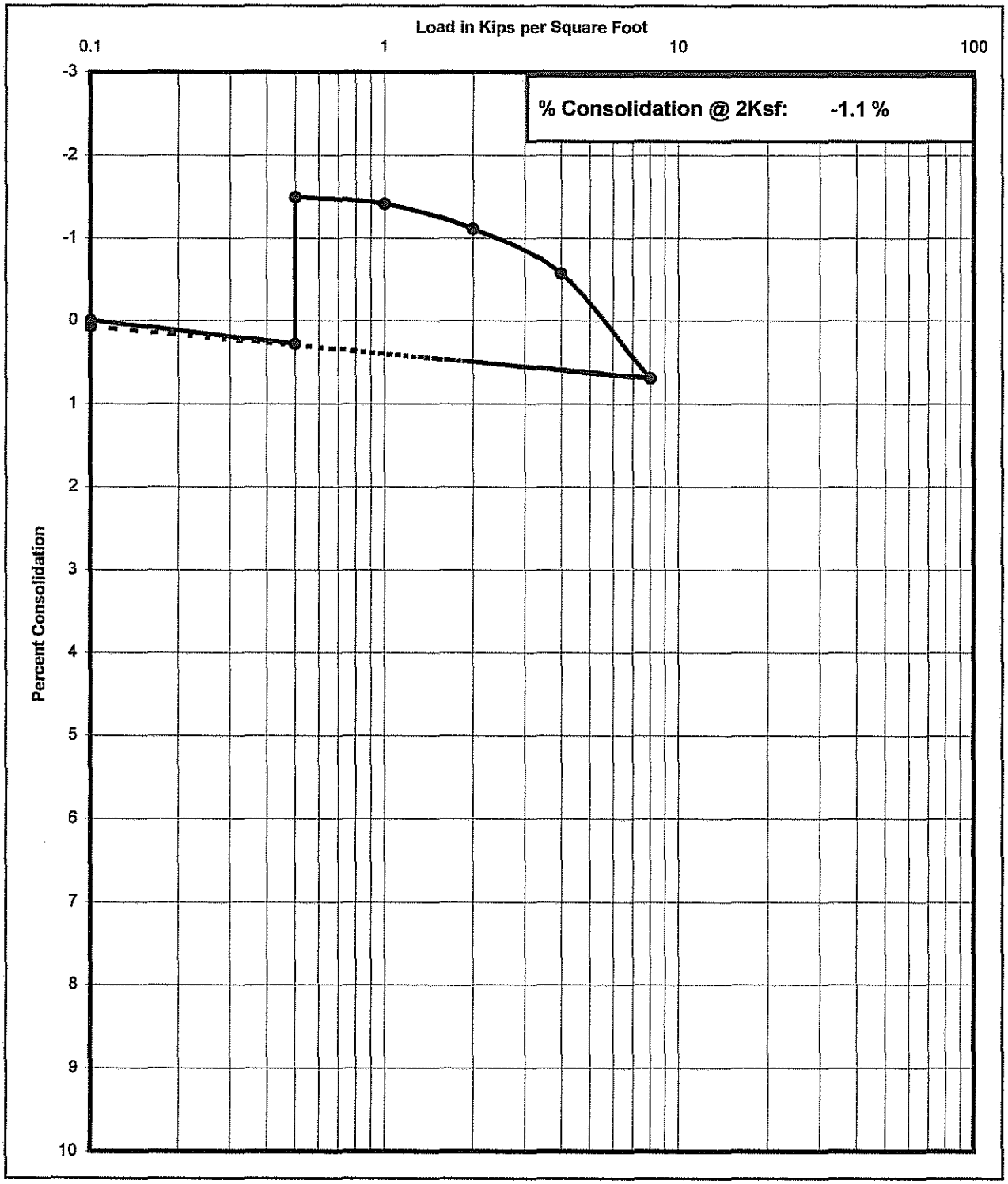
Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
122-06008	B-1 @ 2'	5/8/06	(CL), Silty Clay



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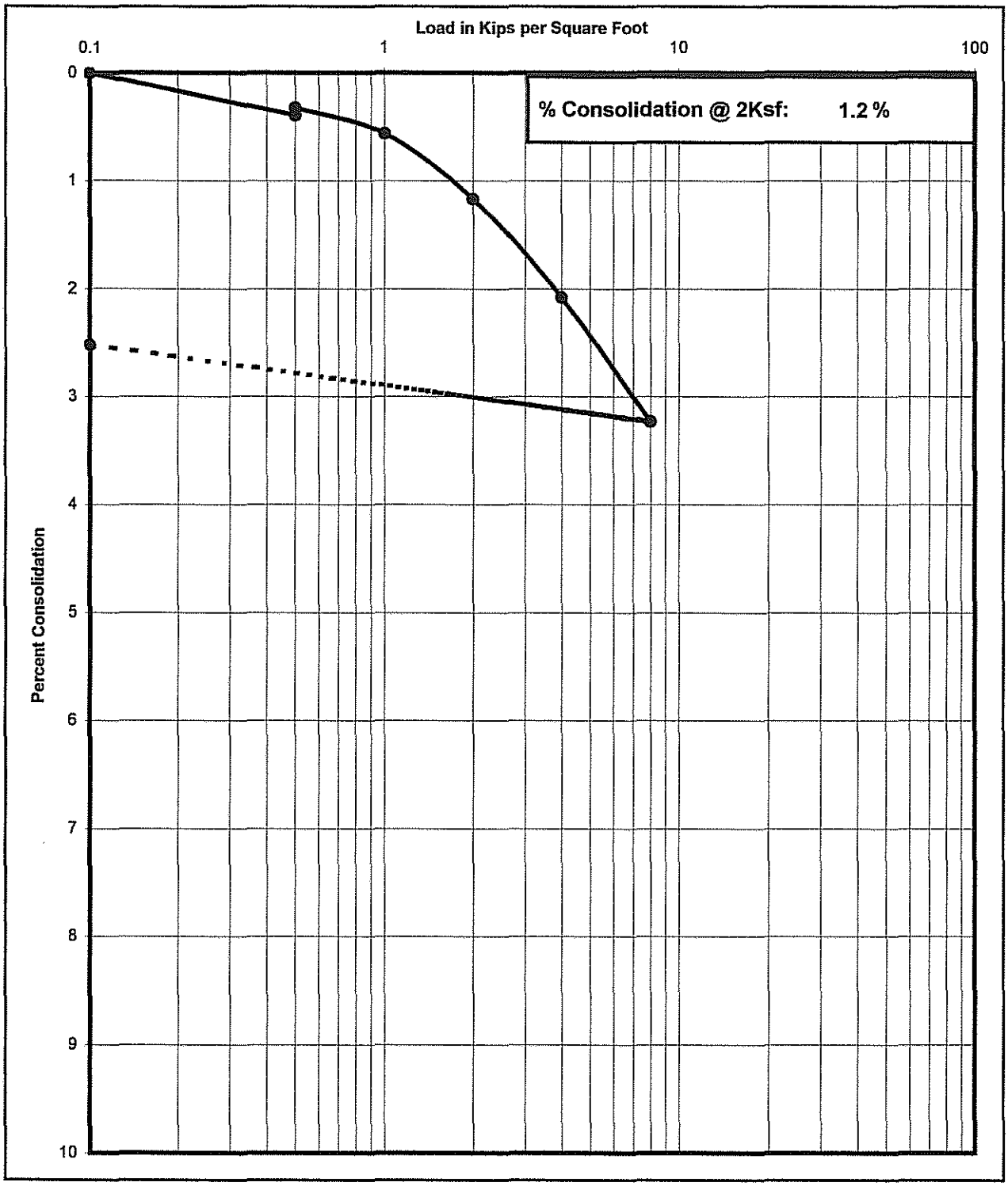
Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
122-06008	B-3 @ 5'	5/8/06	(ML), Clayey Silt



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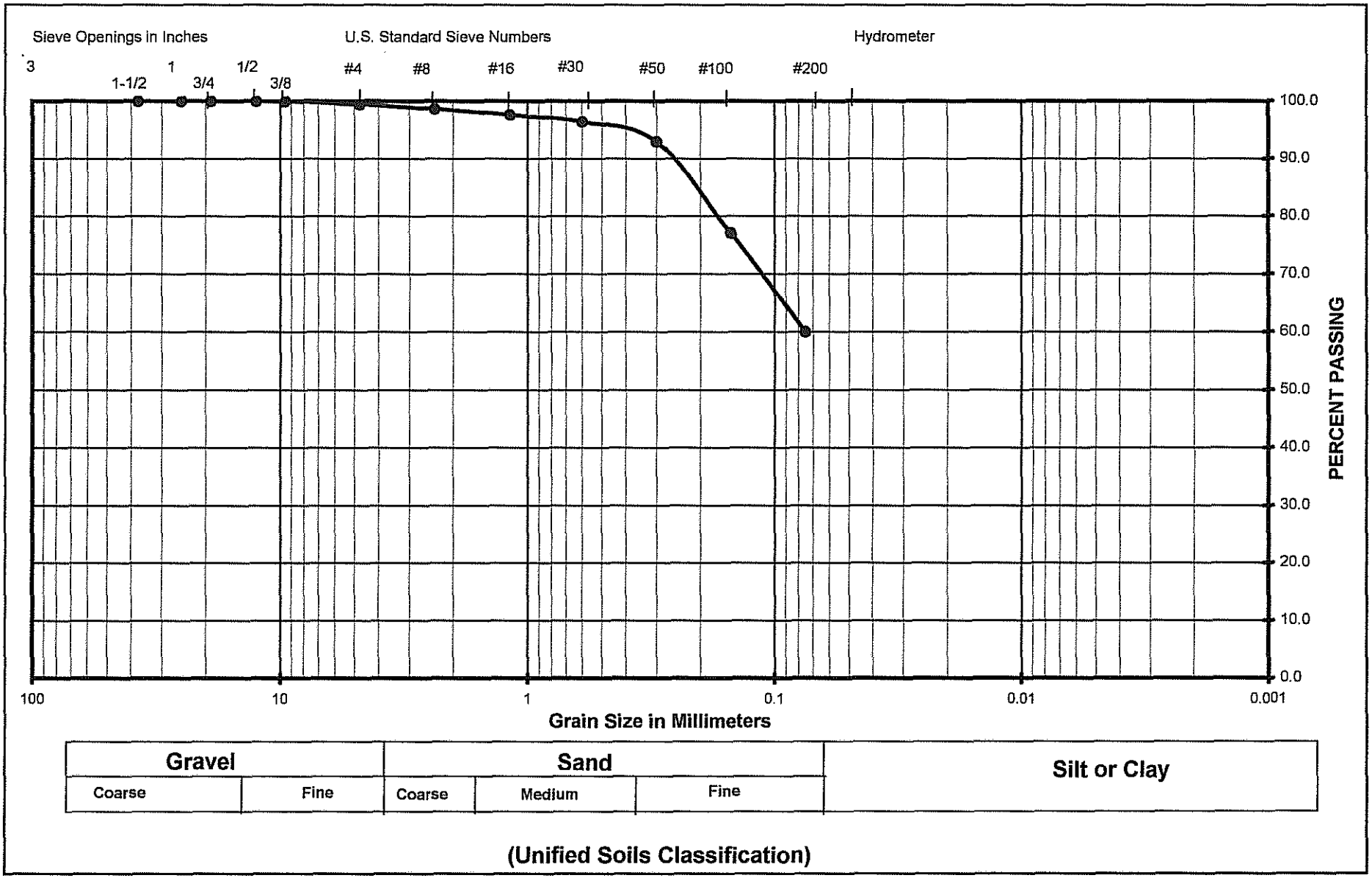
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Shopping Center - Otay Mesa
Project Number	122-06008
Soil Classification	(CL), Silty Clay
Sample Number	B-1 @ 2'

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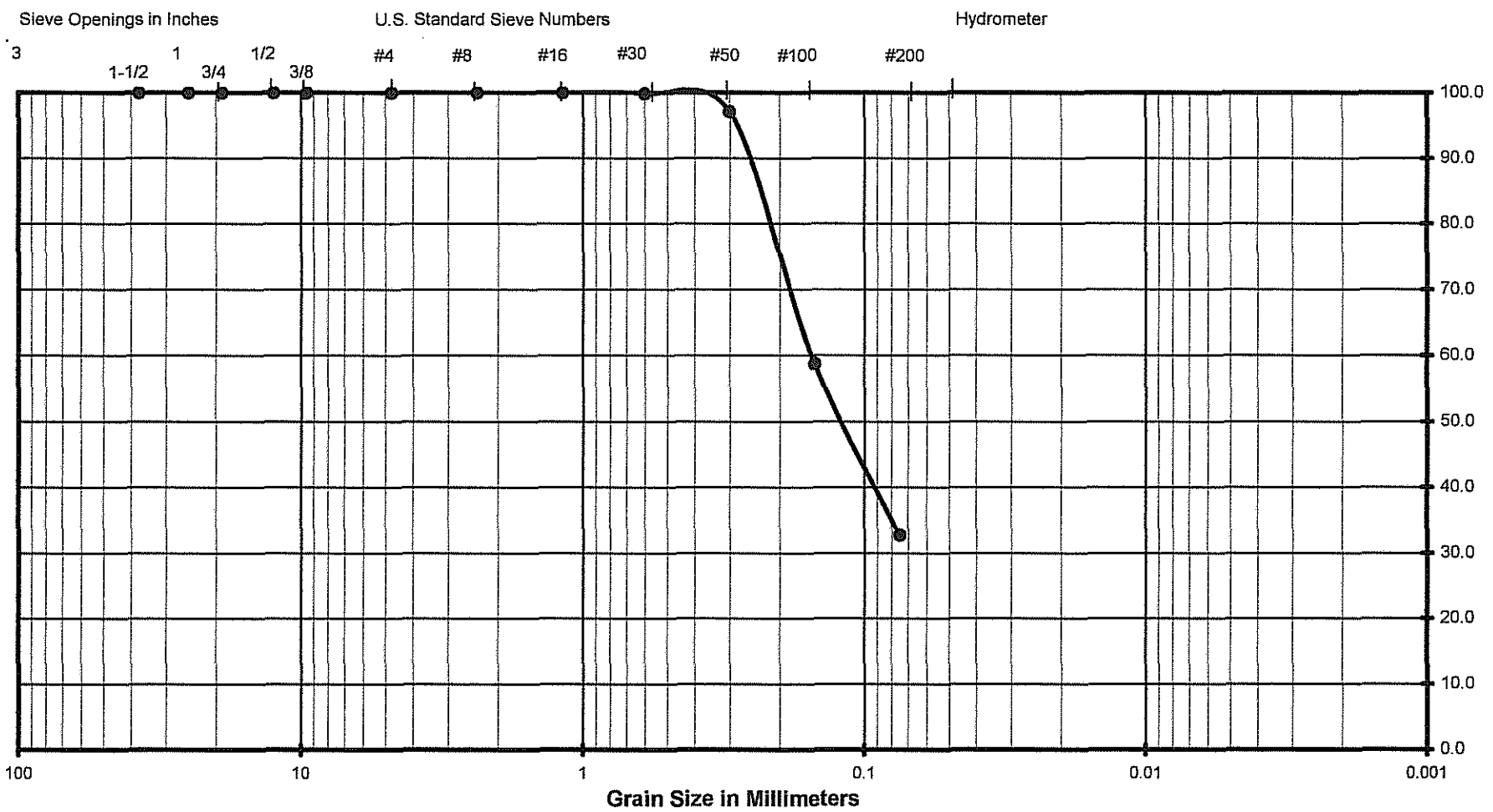
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Shopping Center - Otay Mesa
Project Number	122-06008
Soil Classification	(SM), Silty Sand w/ Clay
Sample Number	B-1 @ 5'

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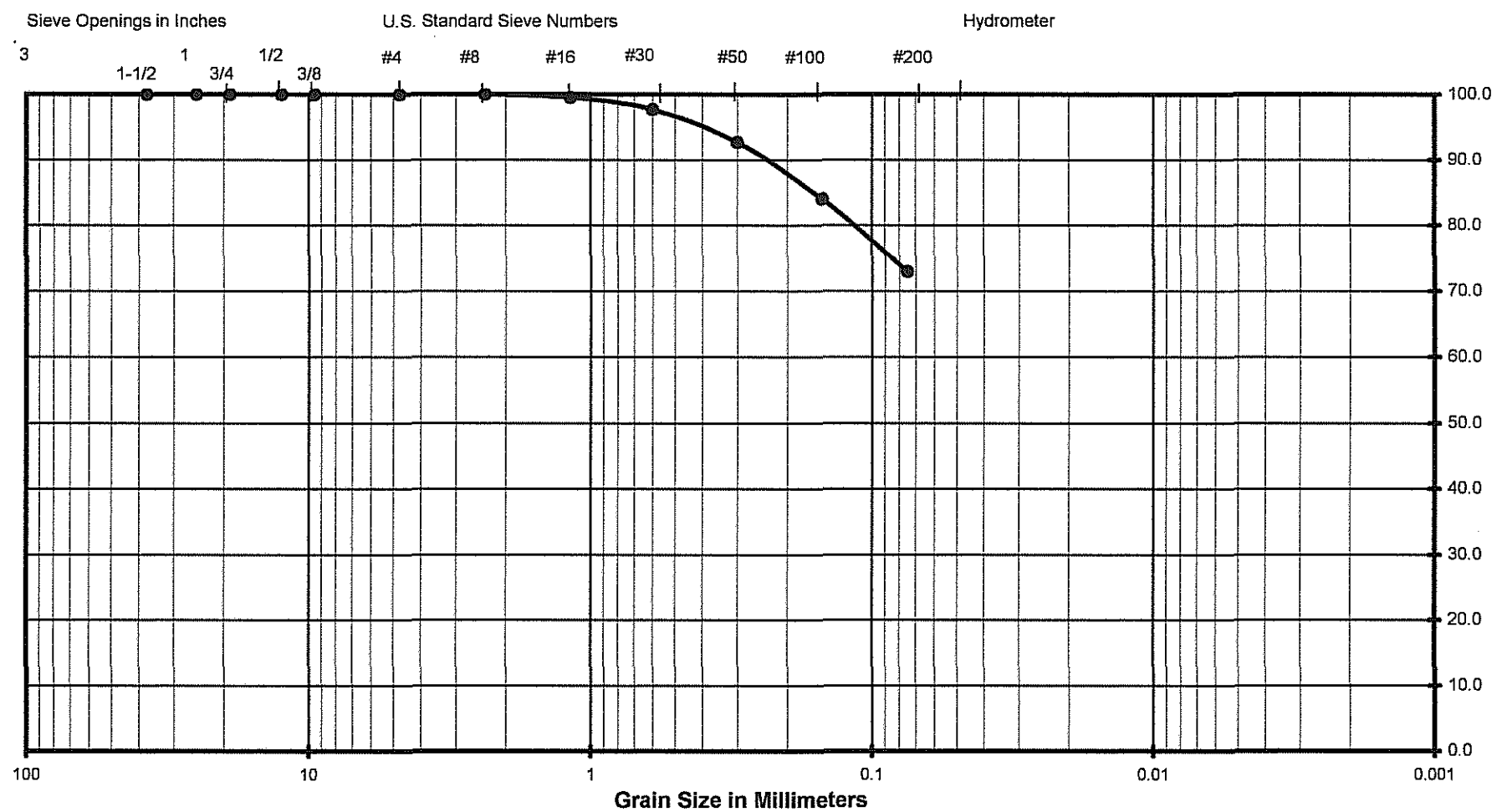
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Shopping Center - Otay Mesa
Project Number	122-06008
Soil Classification	(ML), Sandy Silt w/ Clay
Sample Number	B-1 @ 15'

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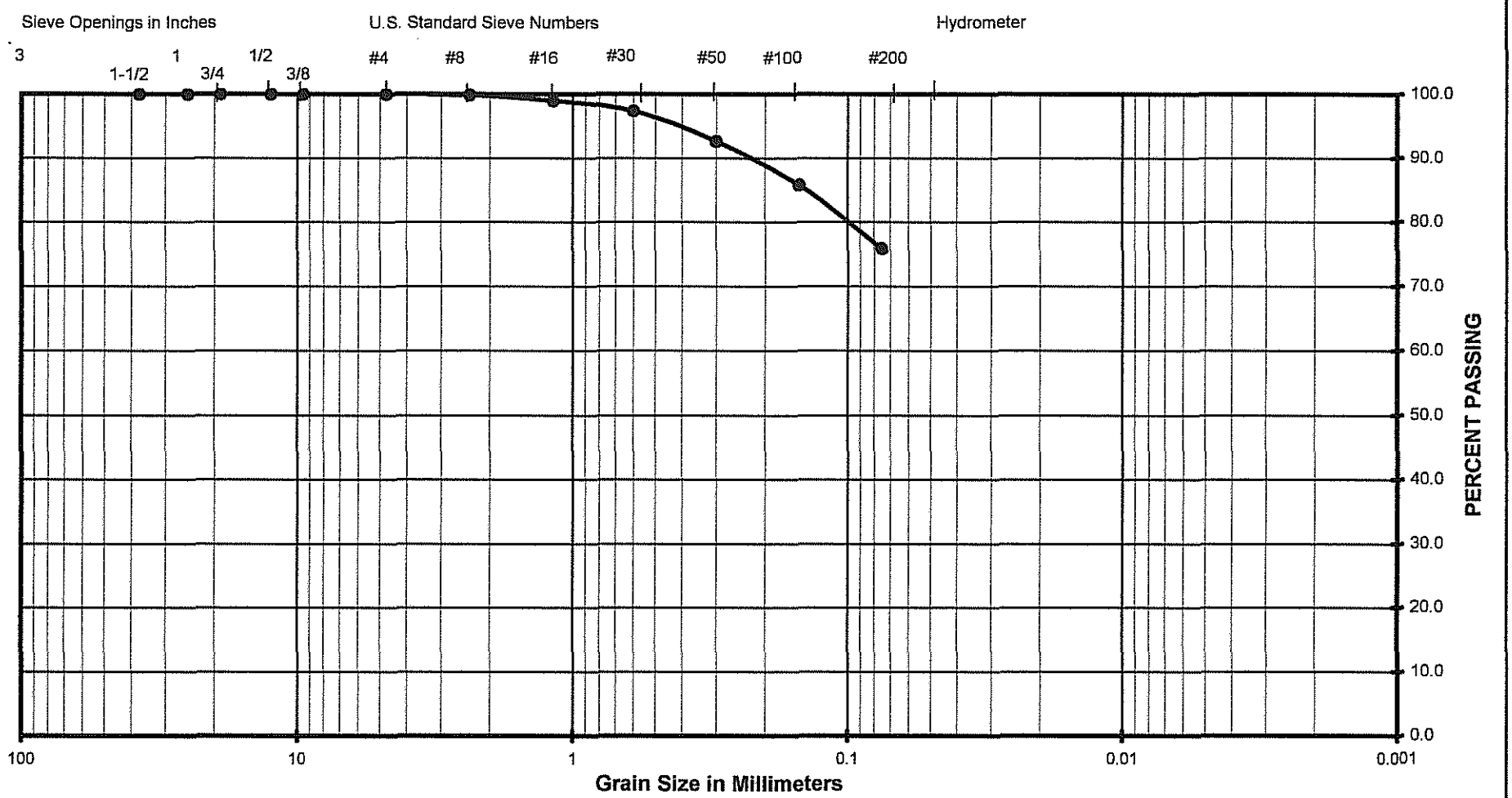
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Shopping Center - Otay Mesa
Project Number	122-06008
Soil Classification	(ML), Sandy Silt w/ Clay
Sample Number	B-1 @ 25'

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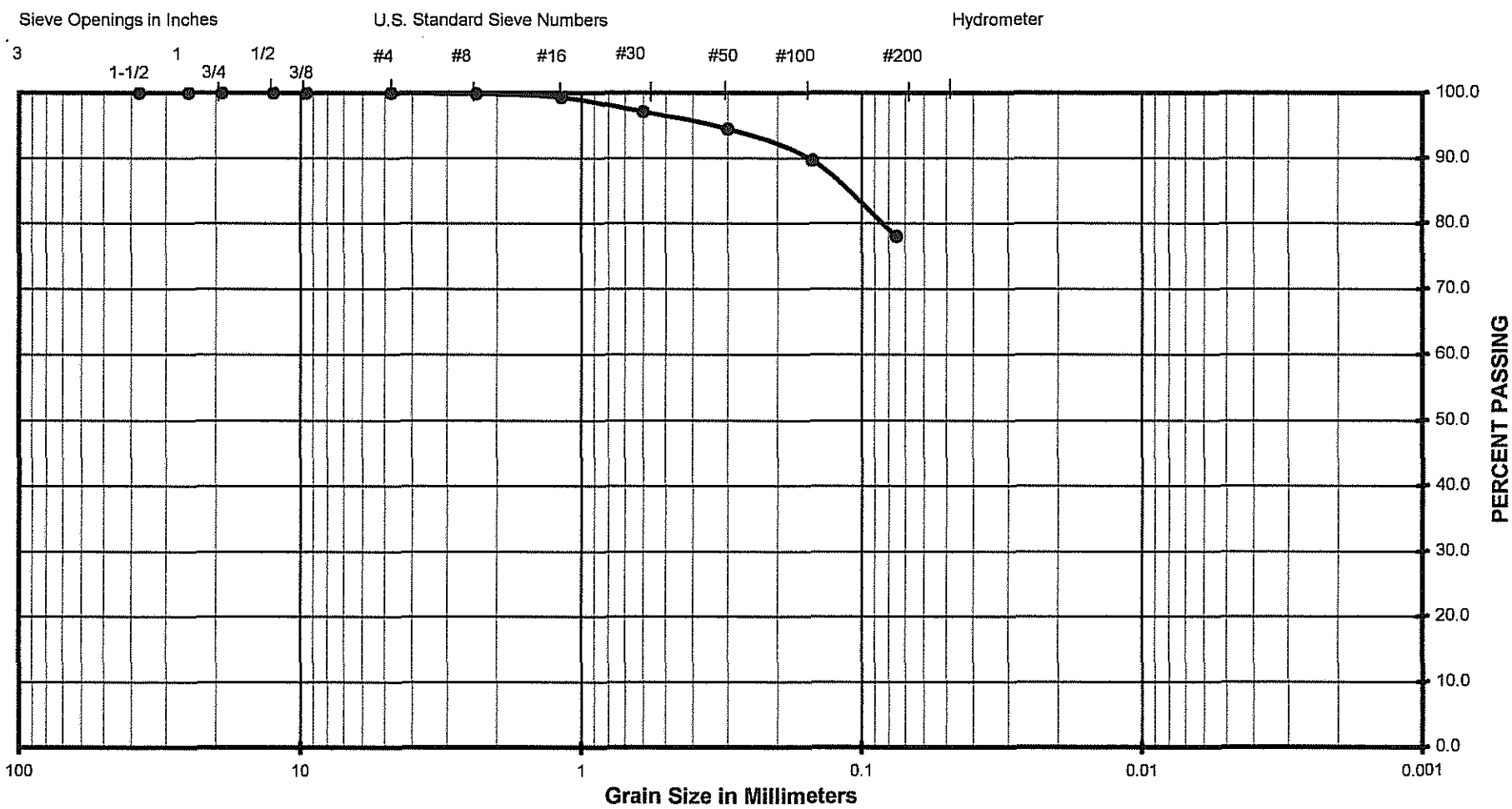
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Shopping Center - Otay Mesa
Project Number	122-06008
Soil Classification	(ML), Sandy Silt w/ Clay
Sample Number	B-1 @ 35'

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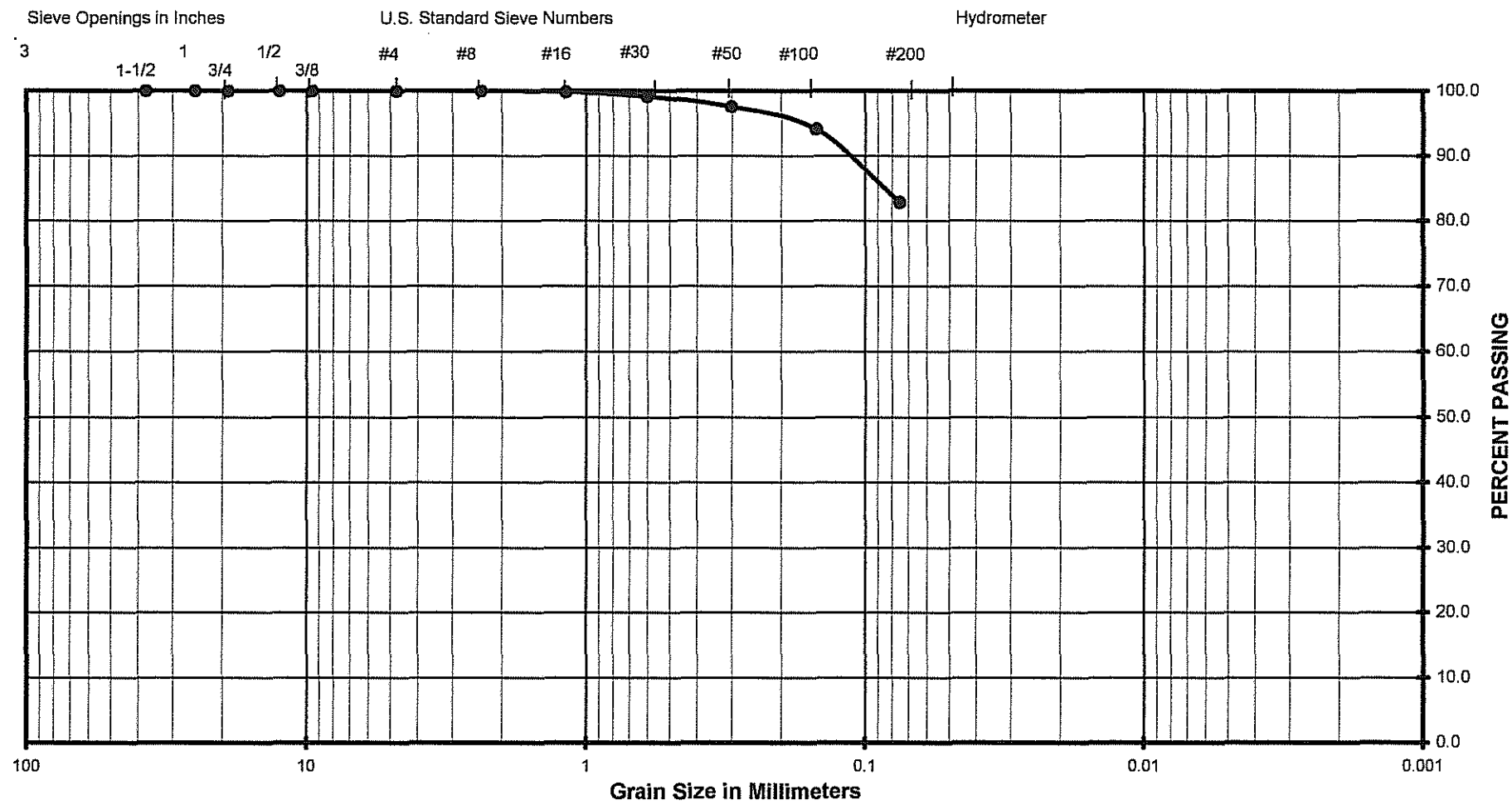
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Shopping Center - Otay Mesa
Project Number	122-06008
Soil Classification	(ML), Sandy Silt w/ Trace Clay
Sample Number	B-1 @ 45'

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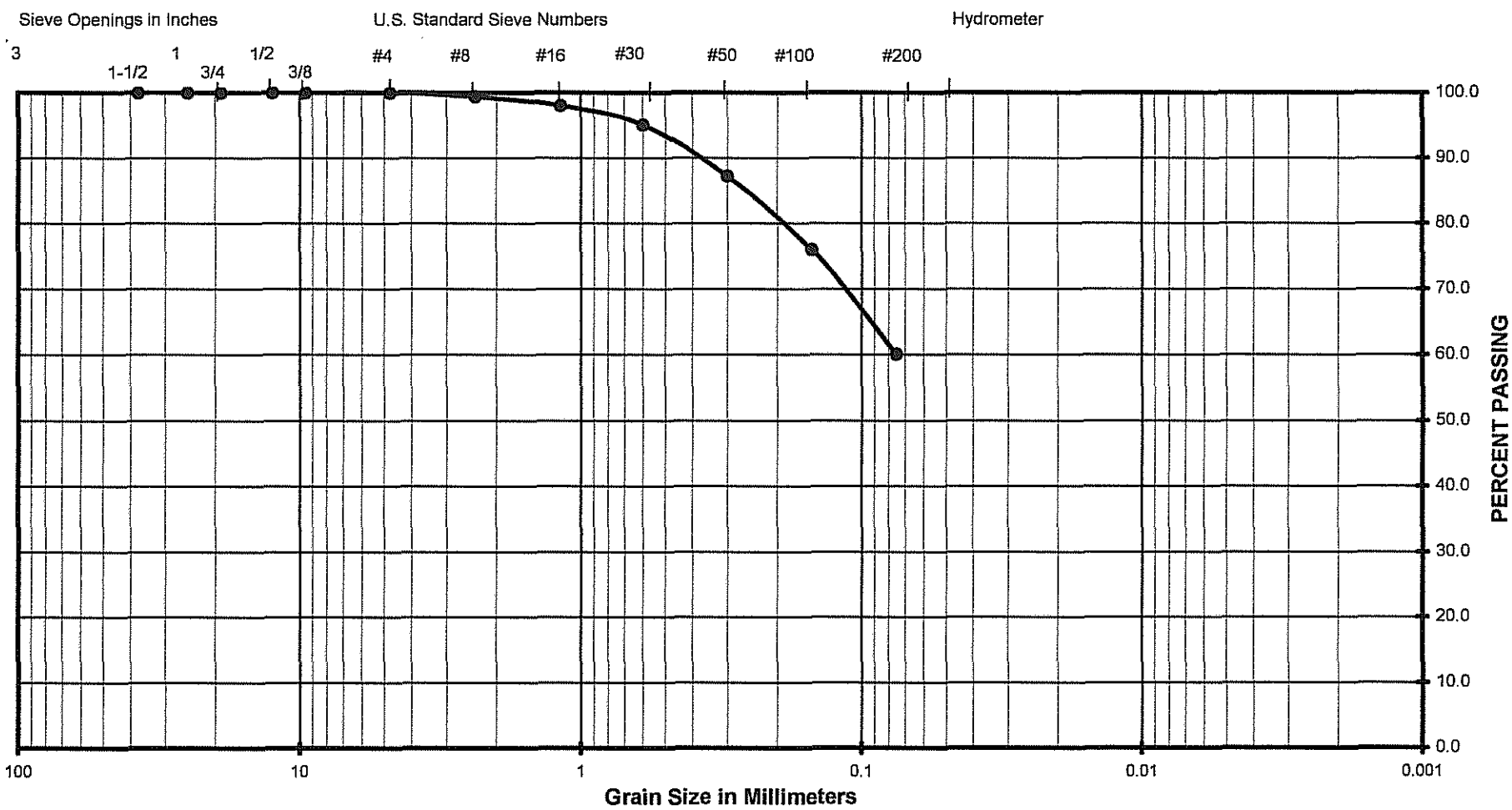
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Shopping Center - Otay Mesa
Project Number	122-06008
Soil Classification	(ML), Sandy Silt w/ Trace Clay
Sample Number	B-1 @ 50'

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Expansion Index Test

ASTM D - 4829/ UBC Std. 18-2

Project Number	: 122-06008
Project Name	: Shopping Center - Otay Mesa
Date	: 5/8/06
Sample location/ Depth	: B-1 @ 0-3'
Sample Number	: 1
Soil Classification	: (ML-CL), Clayey Silt-Silty Clay

Trial #	1	2	3
Weight of Soil & Mold, gms	526.7		
Weight of Mold, gms	170.8		
Weight of Soil, gms	355.9		
Wet Density, Lbs/cu.ft.	107.3		
Weight of Moisture Sample (Wet), gms	300.0		
Weight of Moisture Sample (Dry), gms	257.1		
Moisture Content, %	16.7		
Dry Density, Lbs/cu.ft.	92.0		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	54.2		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	--	--	--	--	--	0.115

Expansion Index $_{measured}$ = 115

Expansion Index $_{50}$ = 119.5

Expansion Index = 120

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

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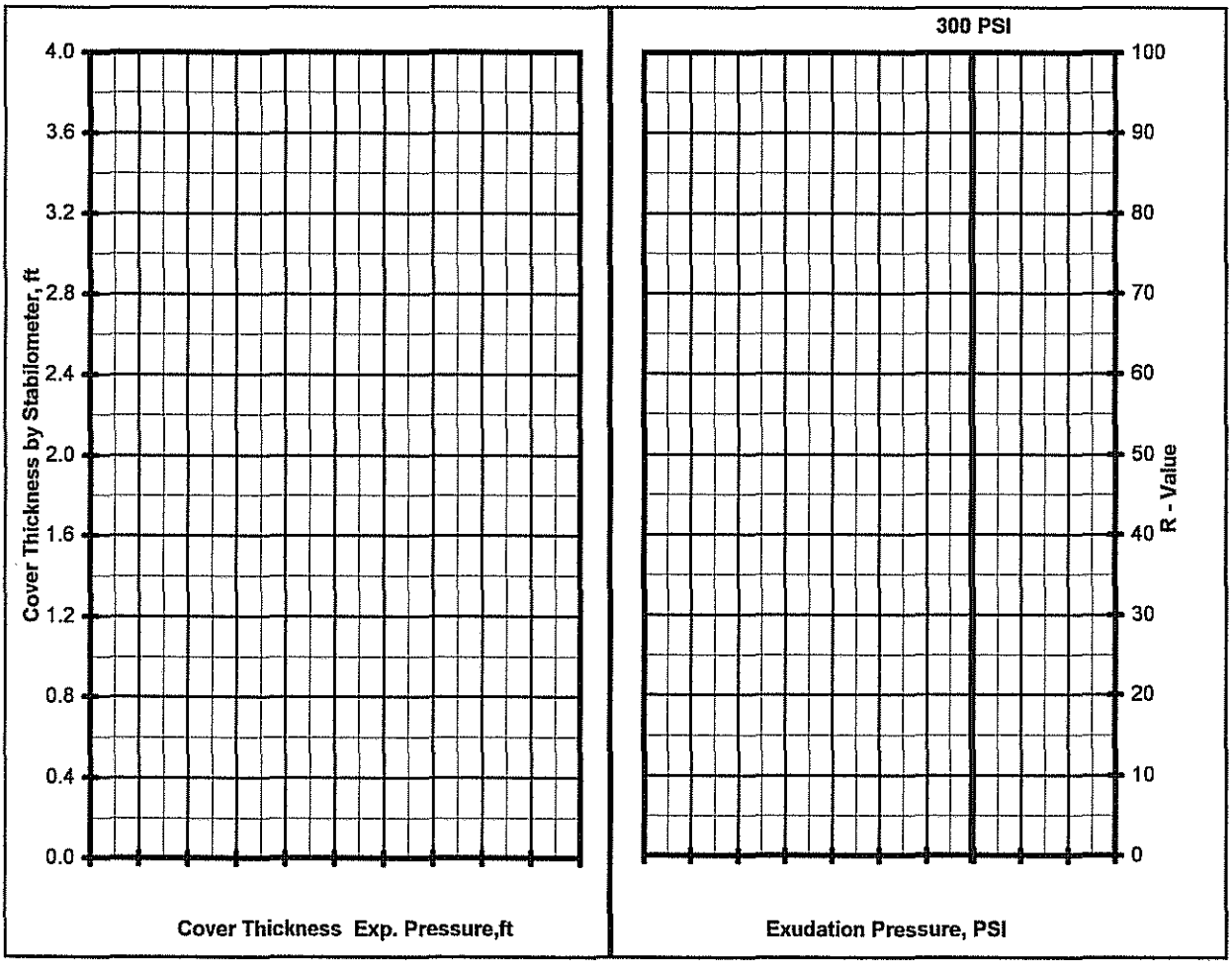
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	122-06008
Project Name	:	Shopping Center - Otay Mesa
Date	:	5/8/06
Sample Location/Curve Number	:	RV # 1 (B-6 @ 0-2')
Soil Classification	:	(CL), Silty Clay

TEST	A	B	C
Percent Moisture @ Compaction, %			
Dry Density, lbm/cu.ft.	R - Value less than 5 Sample Exuded from bottom of Mold During test		
Exudation Pressure, psi			
Expansion Pressure, (Dial Reading)			
Expansion Pressure, psf			
Resistance Value R			

R - Value at 300 PSI Exudation Pressure	**< 5**
R - Value by Expansion Pressure	

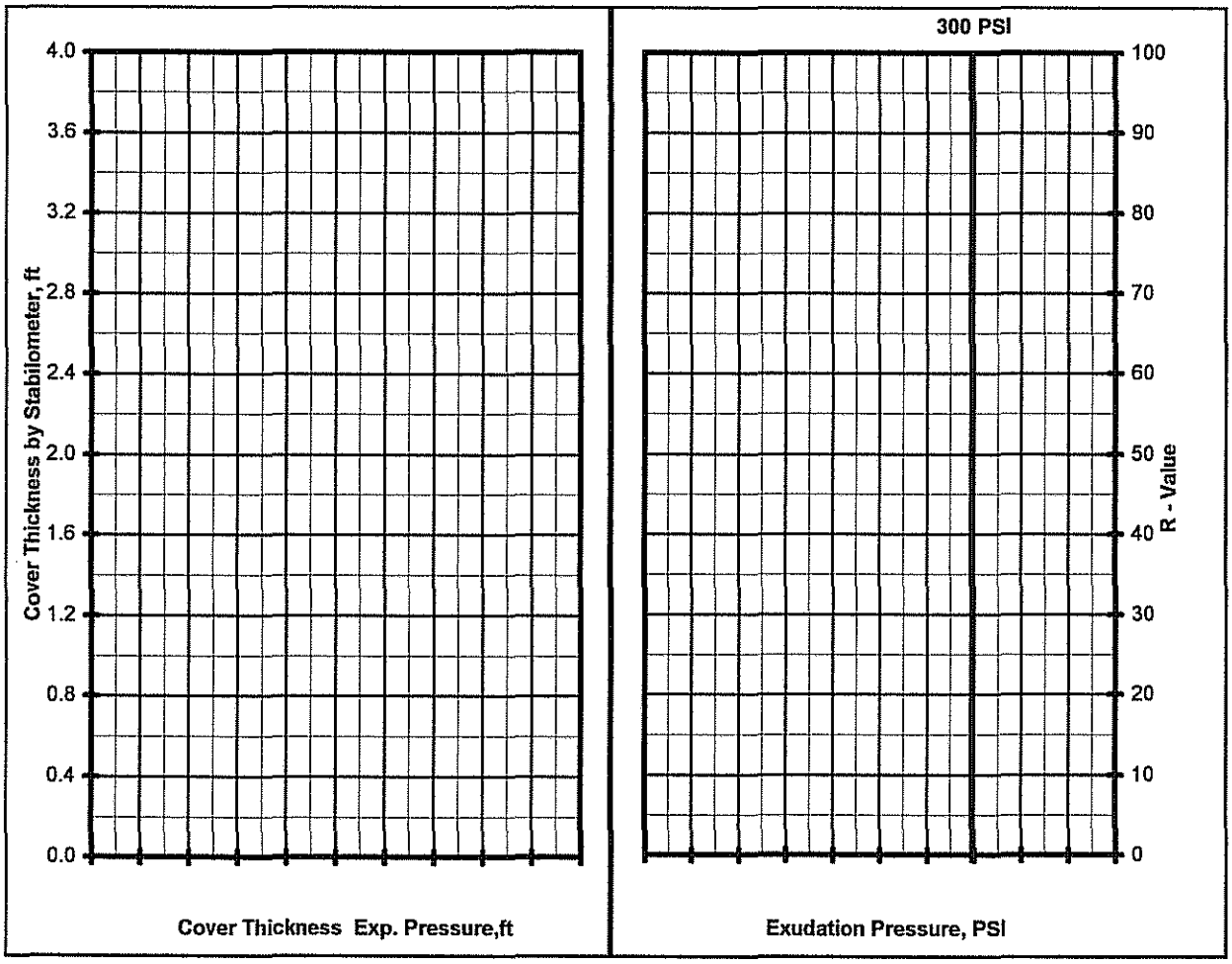


R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	122-06008
Project Name	:	Shopping Center - Otay Mesa
Date	:	5/8/06
Sample Location/Curve Number	:	RV # 2 (B-13 @ 0-2')
Soil Classification	:	(CL), Silty Clay

TEST	A	B	C
Percent Moisture @ Compaction, %			
Dry Density, lbm/cu.ft.	R - Value less than 5 Sample Exuded from bottom of Mold During test		
Exudation Pressure, psi			
Expansion Pressure, (Dial Reading)			
Expansion Pressure, psf			
Resistance Value R			

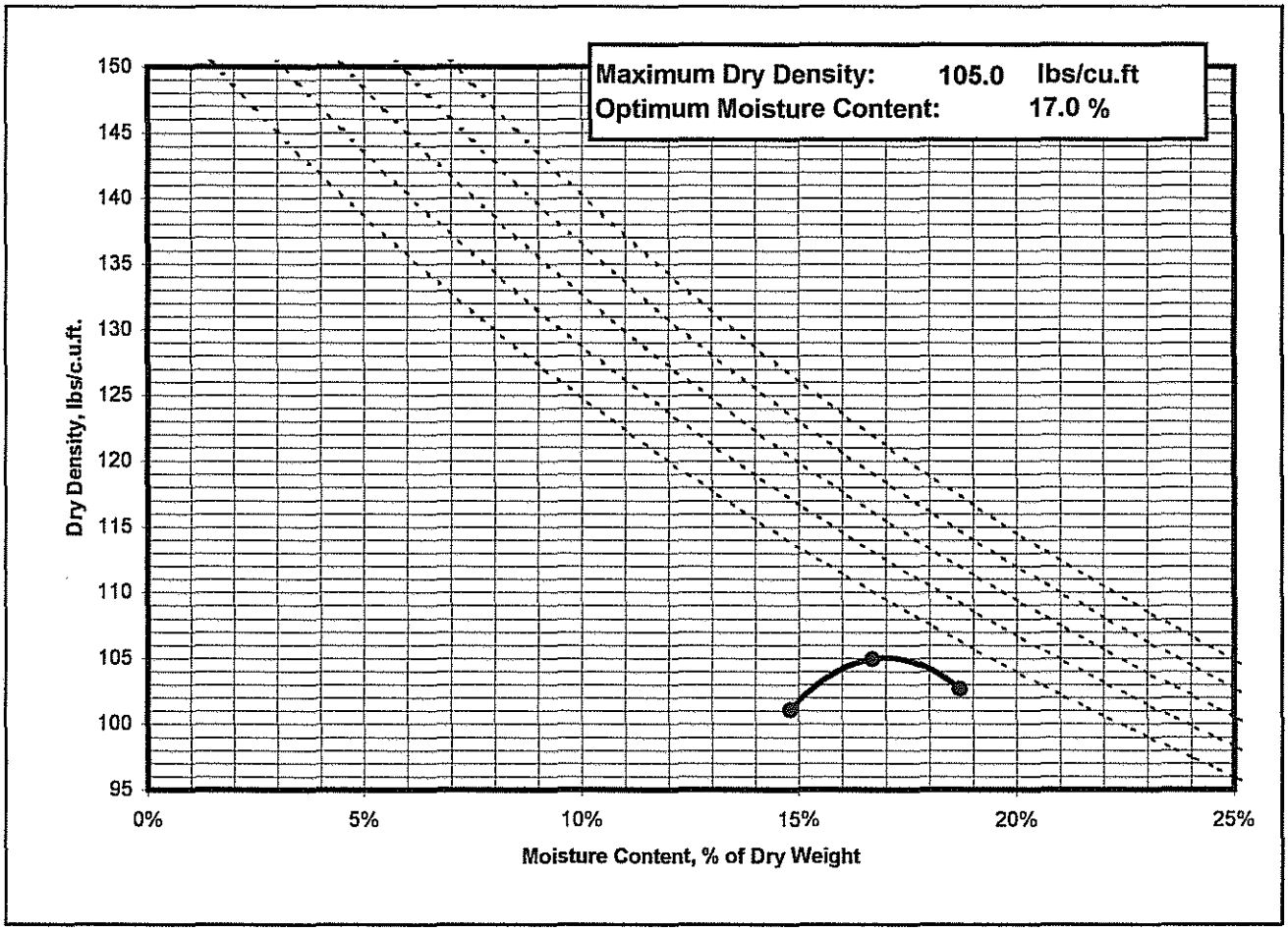
R - Value at 300 PSI Exudation Pressure	**< 5**
R - Value by Expansion Pressure	



Laboratory Compaction Curve
ASTM - D1557, D698

Project Number	: 122-06008
Project Name	: Shopping Center - Otay Mesa
Date	: 05/08/06
Sample location	: B-1 @ 0-3'
Sample/Curve Number	: 1
Soil Classification	: (ML-CL), Clayey Silt-Silty Clay
Test Method	: 1557A

	1	2	3
Weight of Moist Specimen & Mold, gm	3752.8	3848.9	3840.5
Weight of Compaction Mold, gm	2004.7	2004.7	2004.7
Weight of Moist Specimen, gm	1748.1	1844.2	1835.8
Volume of mold, cu. ft.	0.0332	0.0332	0.0332
Wet Density, lbs/cu.ft.	116.1	122.5	121.9
Weight of Wet (Moisture) Sample, gm	200.0	200.0	200.0
Weight of Dry (Moisture) Sample, gm	174.2	171.4	168.5
Moisture Content, %	14.8%	16.7%	18.7%
Dry Density, lbs/cu.ft.	101.1	104.9	102.7



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APPENDIX B

GENERAL EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including, but not limited to, the furnishing of all labor, tools and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthworks in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of Krazan and Associates, Incorporated, hereinafter referred to as the Soils Engineer and/or Testing Agency. Attainment of design grades, when achieved shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary adjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer, or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to no less that 90 percent of relative compaction based on ASTM D1557-00 Test Method, UBC or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the Geotechnical Engineering Report.

The Contractor shall make his own interpretation of the data contained in the Geotechnical Engineering Report and the Contractor shall not be relieved of liability under the Contractor for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or wind-blown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and preparation of foundation materials for receiving fill.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter and all other matter determined by the Soils Engineer to be deleterious. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent, which would permit removal of all roots greater than 1 inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill or tree root excavation should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas, which are to receive fill materials, shall not be permitted.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill, shall be prepared as outlined above, excavated/scarified to a minimum depth of 8 inches, moisture-conditioned as necessary, and recompacted to at least 90 percent relative compaction.

Loose soil areas and/or areas of disturbed soil shall be moisture-conditioned as necessary and recompacted to 90 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas, which are to receive fill materials, shall be approved by the Soils Engineer prior to the placement of any of the fill material.

EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills, provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing, or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill is as specified.

APPENDIX C

GENERAL PAVEMENT SPECIFICATIONS

1. DEFINITIONS - The term "pavement" shall include asphalt concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term "Standard Specifications": hereinafter referred to is the January 1999 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the ASTM D1557-00.

2. SCOPE OF WORK - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically notes as "Work Not Included."

3. PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 90 percent. The finished subgrades shall be tested and approved by the Geotechnical Engineer prior to the placement of additional pavement courses.

4. UNTREATED AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class 2 material, ¾-inches maximum size. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Geotechnical Engineer prior to the placement of successive layers.

5. AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Geotechnical Engineer prior to the placement of successive layers.

6. ASPHALT CONCRETE SURFACING - Asphalt concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt shall be AR-4000. The mineral aggregate shall be Type B, ½-inch or ¾-inch maximum, medium grading, for the wearing course and ¾-inch maximum, medium grading for the base course, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment, and spreading and compacting the mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50 degrees F. The surfacing shall be rolled with a combination steel-wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphalt emulsion) shall conform to and be applied in accordance with the requirements of Section 37.